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Has Industry Junked the Inventor?

FEBRUARY, 1951

35 CENTS

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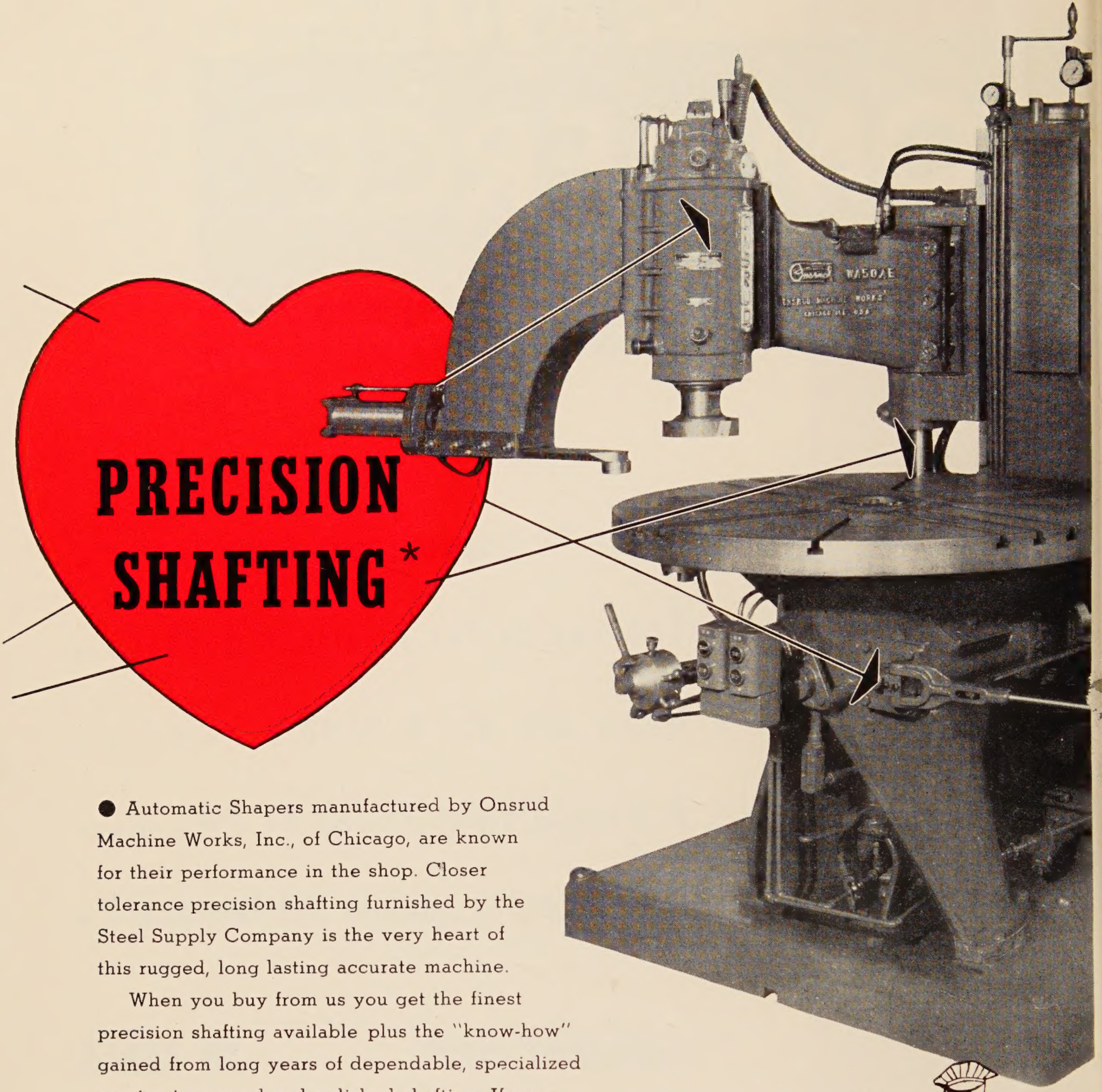

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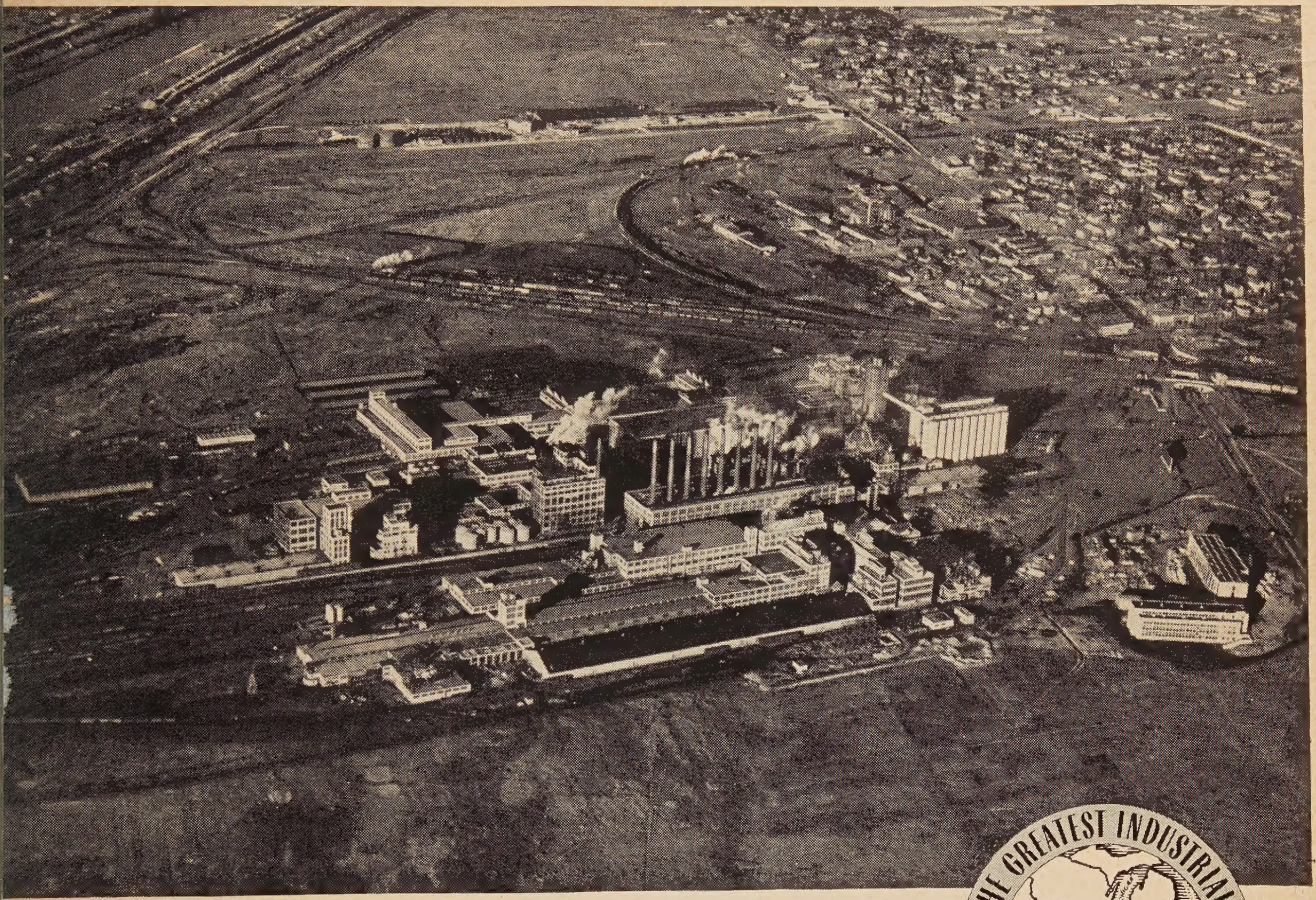
DEFENSE PRODUCTION REQUIRES INDUSTRIAL "ELBOW ROOM"



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THE work of rapidly re-building the nation's defenses again puts our production resourcefulness to test. Among the great assets of our country for the job ahead are the unequalled facilities for industrial expansion and increased productivity to be found in the Chicago and Northern Illinois area.

There are sites here for new plants, and there is room to grow for both old *and* new plants—elbow room to spread out, if need be, to meet the new and vital requirements of defense work.

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The Nation's No. 1
Coast-to-Coast
Airline

STATISTICS OF
CHICAGO BUSINESS

	December 1950	November, 1950	Decembe 194
Building permits	579	664	52
Cost	$12,431,400	$15,680,900	$10,846,40
Contracts awarded on building projects,			
Cook Co.	1,071	1,970	1,15
Cost	$32,079,000	$33,849,000	$32,176,00
(F. W. Dodge Corp.)			
Real estate transfers	5,364	6,718	5,21
Consideration	$6,877,028	$8,067,827	$7,884,84
Department store sales index (Federal Reserve Board) (Daily average 1935-39=100)	399.4*	292.4	368.
Bank clearings	$3,748,872,842	$3,659,203,696	$3,174,734,93
Bank debits to individual accounts:			
7th Federal Reserve District	$20,416,397,000	$18,402,129,000	$16,372,686,00
Chicago only	$10,598,146,000	$9,146,312,000	$8,612,004,00
(Federal Reserve Board)			
Midwest Stock Exchange transactions:			
Number of shares traded	2,046,000	1,590,000	1,299,00
Market value of shares traded	$46,988,570	$42,039,949	$32,323,71
Railway express shipments, Chicago area	1,270,402	1,087,232	1,577,68
Air express shipments, Chicago area	86,029	64,113	67,94
L.C.L. merchandise cars	17,217	22,158	19,51
Electric power production, kwh	1,253,881,000	1,185,067,000	1,134,613,00
Industrial gas sales, therms	11,665,545	10,237,567	8,773,19
Revenue passengers carried by Chicago Transit Authority Lines:			
Surface division	53,908,536	52,131,749	57,593,34
Rapid transit division	13,909,878	12,680,397	13,441,65
Air passengers:			
Arrivals	139,477	140,692	90,91
Departures	150,159	148,082	96,60
Consumers' Price Index (1935-39=100)	184.1	180.6	173.
Livestock slaughtered under federal inspection	713,789	660,372	693,13
Families on relief rolls:			
Cook County	26,453	26,524	30,30
Other Illinois counties	18,788	17,578	21,86

*Preliminary figure.

MARCH, 1951, TAX CALENDAR

Date Due	Tax	Returnable to
15	If total O.A.B. taxes (employer and employe) plus income tax withheld in previous month exceeds $100, pay amount to	Authorized Depositar
15	File return and pay Federal Income Tax withheld at source. (Forms 1013 and 1042)	Collector of Interna Revenue
15	Final 1950 Income Tax Return (Individuals) and settlement of 1950 income taxes (Form 1040 or 1040A)	Collector of Interna Revenue
15	Federal Income Tax (Calendar year basis). Full payment or payment of first installment (30%) by corporations, Form 1120; File partnership information returns Form 1065, no payment required	Collector of Interna Revenue
15	Declaration of 1951 estimated tax by individuals and payment of one-quarter of tax in excess of estimated withholding	Collector of Interna Revenue
15	Illinois Retailers' Occupation Tax return and payment for month of February	Director of Revenue
31	Federal Excise Tax return and payment due for February, 1951	Collector of Interna Revenue

The Missing Pages In This Volume Are Advertisements

Co.

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ONTENTS ☆

If You Want Subcontract Work .... By Guenther Baumgart 13

Lukewarm To Red Hot: The Search For American Rubber By John L. Kent 15

Radar vs. A-Bomb .... By Mitchell Gordon 16

Look Out—When the Thermometer Hits Bottom At -459! .... By Vernon E. Brink 18

Has Industry Junked the Private Inventor? .... By Benjamin Melnitsky 20

A Psychologist Looks At Television .... By Harriet Bruce Moore 21

Financing Undeveloped Nations .... By Eugene Black 23

REGULAR FEATURES ☆

Statistics of Chicago Business 2

The Editor's Page 7

Here, There and Everywhere 8

Trends in Finance and Business 10

Invest—In the Middle West 31

Industrial Developments in the Chicago Area 35

Transportation and Traffic 39

New Products 44

Stop Me—If 48

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In This Issue . . .

Many manufacturers, declares Guenther Baumgart, are asking the question: "How can I get subcontract work?" Mr. Baumgart should know, for his desk at the Chicago Association of Commerce and Industry has again become, as it was in World War II, a clearing house for information regarding business war problems. In his article (p. 13), Mr. Baumgart outlines a program for seeking subcontract defense work, suggesting also how valuable assistance can be obtained from government and private publications, government purchasing officers and companies holding prime contracts.

Mitchell Gordon of the Washington bureau of the Wall Street Journal provides a report (p. 16) on the nation's radar defense network, which is scheduled for completion next June. The costly protective system will not provide complete security against aerial attacks because a foolproof radar net is virtually impossible to build at any price. However, military experts regard the radar net as greatly diminishing the possibility of a successful attack.

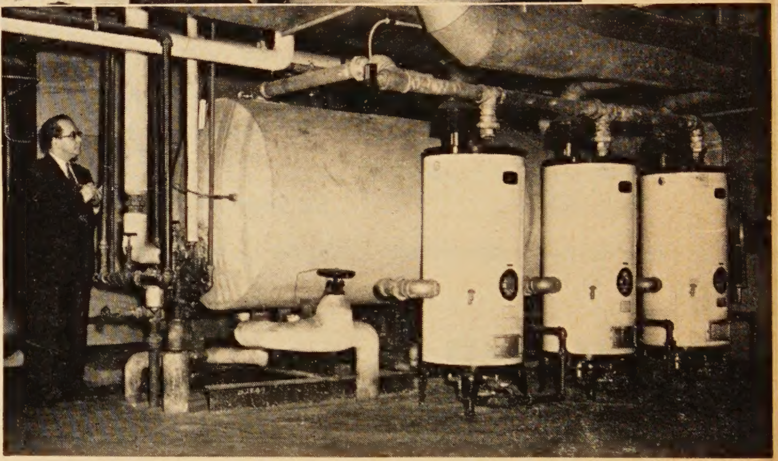
No matter how cold it gets outside it will still be hot compared with the "near-absolute-Zero" temperatures discussed (p. 18) by Vernon Brink. Science has now succeeded in driving the thermometer down to minus-459 degrees F., a scant fraction of a degree above the point where all molecular motion theoretically ceases. In this supercold world, nature plays strange tricks. Also, science is learning how to improve many products by submitting them to this intense cold.

Benjamin Melnitsky, author of "Has Industry Junked The Private Inventor?" (p. 20), is a science writer who has appeared in many periodicals. His thesis is this: in its preoccupation with modern research, industry has tended to underrate, if not ignore, the private inventor. The author contends that companies which pass up the private inventor may be losing the services of Twentieth Century Edisons, Whitneys and Westinghouses.

THE USE OF GAS IN BUSINESS

NO. 25 OF A SERIES

Main dining room of Chicago's newest Toffenetti restaurant, 65 W. Monroe Street.



Al. Bednash, Manager, checking temperatures on gas-fired water heating installation, consisting of three booster boilers with a capacity of 225 gallons each and a 750-gallon storage tank.

Dario L. Toffenetti, one of the city's leading restaurateurs, has seven establishments in Chicago and one in New York City. For a long time he has been glorifying the Idaho potato. Now, in addition to the potato, he is featuring the oyster, either on the half shell, fried, or in succulent stews.

The Toffenetti restaurants in Chicago serve approximately 12,500 meals each day. In the operation of a modern restaurant, hot water plays a very important part. To provide for the 20,000 gallons of hot water required daily in the new Monroe Street restaurant for sterilized dishwashing and other cleaning purposes, gas-fired equipment has been installed to assure fast, efficient and economical service.

THE PEOPLES GAS LIGHT AND COKE COMPANY

The Editor's Page

Has Progress Overcarried?

ALLEGHENY Ludlum Steel Corporation has just come up with a startling piece of intelligence. ke a host of publicly owned companies, it had joined the trend toward extensive and elaborately illus- ated annual reports. Then the corporate manage- ent began asking itself questions. The result was a rvey of A. L. stockholders to determine what type annual report they preferred: One, a colorful, well ustrated report; two, a one-color, factual report; or, ree, financial statistics and auditors' letter only.

Almost 55 per cent of the replying stockholders eferred a plain, factual report compared with 29.6 r cent who wanted an elaborate presentation. Thir- en per cent voted for the very simplest kind of a port so the total favoring a comparatively simple eatment was 68 per cent.

We would be the last to say that the trend toward nbellishment has not greatly improved annual re- orts. The Allegheny Ludlum inquiry suggests, how- ver, that other companies might survey their stock- olders to see whether the trend has gone too far.

Now For The Causes!

AFTER seven months of general debate, the Economic Stabilization Agency, moving with sudden aste, has clamped ceilings on wages and prices. In aking this action, the government followed the gen- ral public conception of the way to control inflation nd ran diametrically counter to the opinion of al- nost all economists.

In mid-December, the Psychological Corporation urveyed public opinion asking which of four actions vould do most to keep the value of the dollar from lropping more. Of the respondents, 65 per cent said rice control, 32 per cent said wage control, 22 per ent said cutting down on non-military expenditures nd 11 per cent said increasing taxes.

Almost simultaneously 220 economists representing 27 colleges and universities, collaborated in drafting an anti-inflation plan. They recommended the elimi- nation of non-urgent government expenditures, an in- crease in taxes to maintain a cash surplus in the fed- eral budget, and restrictions on credit for purposes not essential to defense.

The government's own wage stabilization board is- sued a statement in which it said price and wage con- trol "will not by itself attack inflation at its sources but will merely conceal and defer its effects."

What the experts are saying is that rising prices are not a disease but the symptom of a disease. They are the reflection of an increase in the money supply un- matched by an increase in the supply of goods.

In other words the government has put the cart before the horse. The question is, will the situation be righted? Will the money supply available to consumers be brought into balance with the supply of civilian goods by higher taxation and credit curbs? If it is not, the most that the new price and wage controls can do will be to hold the line as the OPA did during World War II. At worst they will break down as the OPA did after World War II, when patriotic public support for controls was lost.

In any event, the new controls will have no final bearing on the degree of inflation the country does or does not have. That problem must still be solved by Congress, the Treasury and the Federal Reserve authorities. Now that steps have been taken to satisfy the public clamor for treatment of the symptoms, let's hope for speedy work on the causes.

■ Uncle Sam Umbrella Man

ALMOST everyone in New York is bubbling over with praise for the city's professional rainmaker who has increased rainfall in the municipal area to six per cent above normal. Note that we say "almost everyone," for there is one group of New Yorkers—resort owners by trade—who are so thoroughly disturbed over Meteorologist Howell's efforts that they recently sought an injunction to call off the whole unnatural business. Although the court quashed the complaint on grounds that the resort owners had "no vested property rights in the clouds and the moisture therein," the case did raise arresting legal questions.

When Dr. Howell makes rain fall on Peekskill, is he purloining rain that should have fallen on Tonawanda—250 miles to the west? Who owned the rain in the first place—Peekskill or Tonawanda? And if Tonawanda's vineyards suffer, can the grapegrowers sue Dr. Howell, New York City and/or both?

These intricate problems have not escaped the eye of Senator Clint Anderson of New Mexico, who has just introduced a bill in Congress attempting to cover such legal claims. Where would the Senator place the responsibility? Not on the rainmakers nor on cities availing themselves of rainmaking services. No, Senator Anderson would place full responsibility on good old, take-care-of-everyone Washington. The federal government would pay all damage claims arising out of wayward weather manipulation. The Senator would establish a new government agency—the "Weather Control Commission"—which would license responsible rainmakers, and have power to send "weather bootleggers" to jail.

This is not a legal journal and we do not claim legal sagacity. Nevertheless, with Uncle Sam's present global liabilities we think additional ones should not literally be rained on him.

Alan Sturdy

A Message Of Vital Importance To Holders Of Government Defense Contracts

A New And Valuable Service To You

A wide variety of Chicago area companies now have manufacturing time plus essential facilities available to assist you in fulfilling your federal government defense contract work. These concerns are seeking subcontracts from companies having defense work.

For your convenience, the announcements of a number of these concerns, specifying the particular type of work they are equipped to do, have been grouped on page 41 of this issue of Commerce Magazine.

By checking these announcements regularly, you will find valuable aid in fulfilling your government contract.

HERE-THERE and EVERYWHERE

- **A-Bomb Protection** — A University of Chicago professor of surgery reports that people inside a brick or concrete building are "reasonably" well protected against fatal atom-bomb radiations. The university's surgery department found that 15 out of 20 dogs protected with a lead head shield a quarter-inch thick survived X-ray doses which had been uniformly fatal in previous experiments. While similar human headgear is probably impractical, the tests indicate that being inside a brick or concrete structure provides comparable safety and therefore should be "reasonably adequate protection" against radiation.

- **Better Jeeps** — The mighty jeep, which won global fame in World War II, is better than ever today, according to Willys-Overland Motors, Inc., which recently received a $63,000,000 order for the rugged military vehicles. The new jeeps being readied for combat duty are completely waterproof and thus able to operate under several feet of water. They have also been designed to operate at maximum efficiency in extreme heat and cold.

- **Aluminum Output Up** — Aluminum production this year will be in excess of 1,600,000,000 pounds or within 10 per cent of the peak World War II year, according to Richard S. Reynolds, Jr., president of Reynolds Metals Company. Although the anticipated 1951 production level will be double that of 1946, 1952 production, Mr. Reynolds forecasts, will rise still further to 2,200,000,000 pounds, a 50 per cent increase over 1950.

- **Electronic Fishing** — America's commercial fishermen are turning more and more to scientific devices. Bendix Aviation Corporation's Pacific division reports that produ tion of electronic depth record — popularly called "fish-finders" was up 200 per cent in 1950. T echo-sounding device, along wi such navigational aids as radio an radar, is revolutionizing commerci fishing, according to Bendix.

- **New Industry Boom** — An indu try that was virtually non-existe a decade ago grossed a whoppin $1,500,000,000 last year. The indu try, of course, is television. Rad Corporation of America reports th set purchases last year increase more than 100 per cent over 194 with gross sales of all manufactu ers rising to the billion and a ha dollar figure.

- **Synthetic Rubber** — Producti of synthetic rubber began la month at the Institute, W. V plant of the B. F. Goodrich Chem cal Company. The huge plan which was reactivated in 70 day has a rated capacity of 90,000 lo tons a year, almost equal to o month's consumption in this cou try. Capacity production is expecte to be achieved at the plant by ear April.

- **Hot Rail Shipment!** — One the strangest railroad cargoes o record moved 200 miles across Nov Scotia recently. The cargo, a whit hot, 15-ton ingot with a temper ture of 1770 degrees F., was shippe from a steel plant in Sydney another steel plant in Trento Nova Scotia. The extraordinary tri reportedly saved nearly two mont of processing time, because an ing would normally have to be coole for about six weeks before shi ment, then reheated for 10 da before it could be reworked. T stripped ingot was shipped in a ca iron box heavily insulated wi

(Continued on page 45)

Good Neighbor to Mid-America for 100 Years

The birthday greetings that please us most are those that call us "good neighbor" . . . two words saying we are at home in all communities along the Illinois Central.

Time was when we could count neighbors on our fingers. But as our lines opened new lands, new families followed. They traveled far, from Eastern states and abroad, to the lonely Midwest prairies; many earned a stake for farm or store by laying Illinois Central rails.

As our railroad spread south to the Gulf, west to the Missouri River and southeast to Birmingham, we found more good friends to serve and work with, many far beyond our railheads. Joining with old friends and new, we helped to cement the Middle-North and the Middle-South into the land called Mid-America.

For 100 years the Illinois Central has made Mid-America's life its own . . . carrying the products of farm, mine and factory to market and bringing back the needs of daily life.

But the Illinois Central believes, and always has, in looking beyond transportation. For the well-being of every farm, factory, mine, forest and person is the root from which our own well-being springs. For example—

. . . The Illinois Central opened the first shaft coal mine in Illinois, helped make coal the power around which industrial Mid-America has grown.

. . . The Illinois Central carried the first refrigerated rail-shipment of perishable fruit, helped launch a new agricultural development that puts fresh fruits on every table the year 'round.

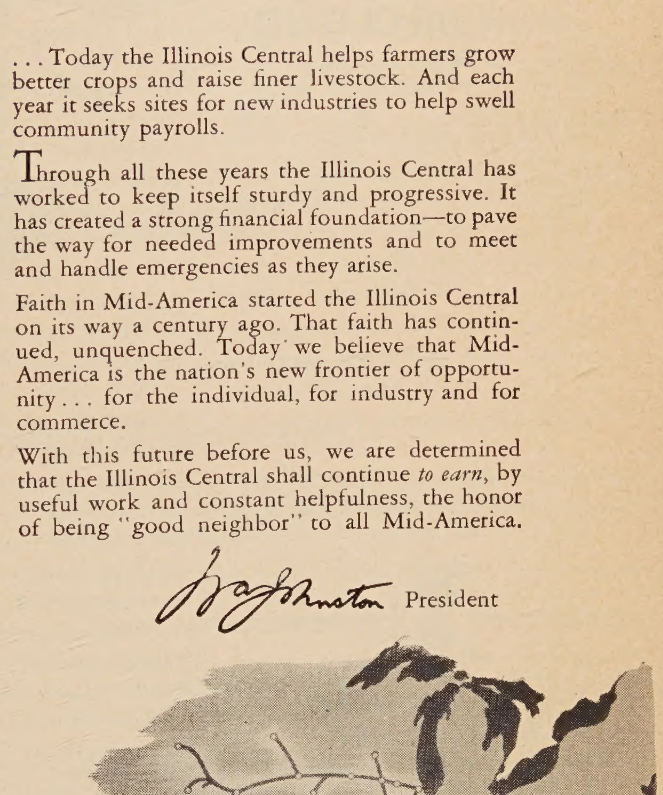
. . . Today the Illinois Central helps farmers grow better crops and raise finer livestock. And each year it seeks sites for new industries to help swell community payrolls.

Through all these years the Illinois Central has worked to keep itself sturdy and progressive. It has created a strong financial foundation—to pave the way for needed improvements and to meet and handle emergencies as they arise.

Faith in Mid-America started the Illinois Central on its way a century ago. That faith has continued, unquenched. Today we believe that Mid-America is the nation's new frontier of opportunity . . . for the individual, for industry and for commerce.

With this future before us, we are determined that the Illinois Central shall continue *to earn*, by useful work and constant helpfulness, the honor of being "good neighbor" to all Mid-America.

W A Johnston President



ILLINOIS CENTRAL RAILROAD

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EMPLOYEE ILL-WILL

LABOR RELATIONS PROBLEMS

LOWERED PRODUCTION

PREVENTABLE

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Trends in FINANCE and BUSINES

Many Companies Aiding Employes Entering Service

The National Industrial Conference Board has just surveyed 180 companies regarding planned benefits to employes leaving for military duty. The principal findings were:

Almost all companies are counting time in uniform in determining length of service for pension plan eligibility. Three out of four companies with contributory pension plans are suspending all payments for employes in uniform, and about the same percentage of those companies with non contributory plans will continue to make contributions for employes while in service.

Only about one in ten companies having group life insurance plans is extending coverage to departing employes who continue making payments, since insurance carriers usually forbid military coverage at existing rates. About one out of five companies canceling group life coverage expect, however, to contribute toward an employe's government insurance premiums. About one out of four companies surveyed having group hospitalization plan to continue dependency coverage where it exists. Finally, about half the surveyed firms which have a Christmas bonus plan to consider departing employes as partly or wholly eligible for such payments.

« « » »

Engineering Grads Find Employment Market Alluring

Engineering graduates — who were virtually a drug on the employment market last June — are now the object of the liveliest "men wanted" search in years. The Illinois Institute of Technology reports that the shortage of engineering graduates, which it believes will be even more critical in the future, has already p duced some "unusual trends" employe recruitment.

More companies than ever befo are now interviewing prospecti college graduates, according to Il nois Tech, and they are raising th salary ante to lure the relative few young engineers who are ava able. There is scarcely an enginee ing graduate who seriously consi ers a job paying less than $275 month to start. Illinois Tech r ports that one company offer $500 a month for a beginning ele tronic engineer in mid-January.

Meanwhile, the school notes the further employment trends: indu try is seeking female engineers f the first time; on-the-spot hiring also occurring for the first tim engineers in sales and service wo in industry are being channeled i to strictly engineering function draft-eligible engineers are bei hired so long as they have not r ceived their first notice; and indu try training programs have bee curtailed or eliminated except i the largest companies. College gra uates instead are being placed i mediately in engineering work.

« « » »

Farmers Seen At Peak of Prosperity And Efficiency

One of th strongest elemen in the nation economy, from th viewpoint of bot productive efficiency and financi liquidity, is the farm communit This is the gist of a recent stu by the Institute of Life Insuran indicating that American farme are in an exceptionally strong po tion to aid the nation's defense fort. Their total assets at the b ginning of 1951 reached a reco high of more than $134 billions, two and a half times the level of

(*Continued on page 43*)

Buy Direct?
...and lose these advantages?!

Here's why I buy through Englewood—

I get a one-stop service with prompt delivery of replacement parts and maintenance supplies and special attention to a rush phone order.

I pay lowest prices—quality parts and products at the lowest cost are assured by Englewood's buying volume and experience.

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7. The reputation of both Englewood and the manufacturers they represent stand behind goods purchased, thus necessary adjustments are immediate, saving me costs and delays.
8. My diversified electrical items purchased at Englewood represent a substantial account while the same volume would be a very small account to any manufacturer.
9. More personal attention, credit consideration, assistance with problems, information and data on new products and their application, all are part of Englewood's service.

Englewood carries 20,000 quality electrical products in stock to insure the most complete service to Electrical Contractors, Industrial Firms, Utilities and Appliance Dealers in the mid-west area. Fast delivery service from our 3 key distributing centers promptly supplies you with the goods you need *as you need them.*

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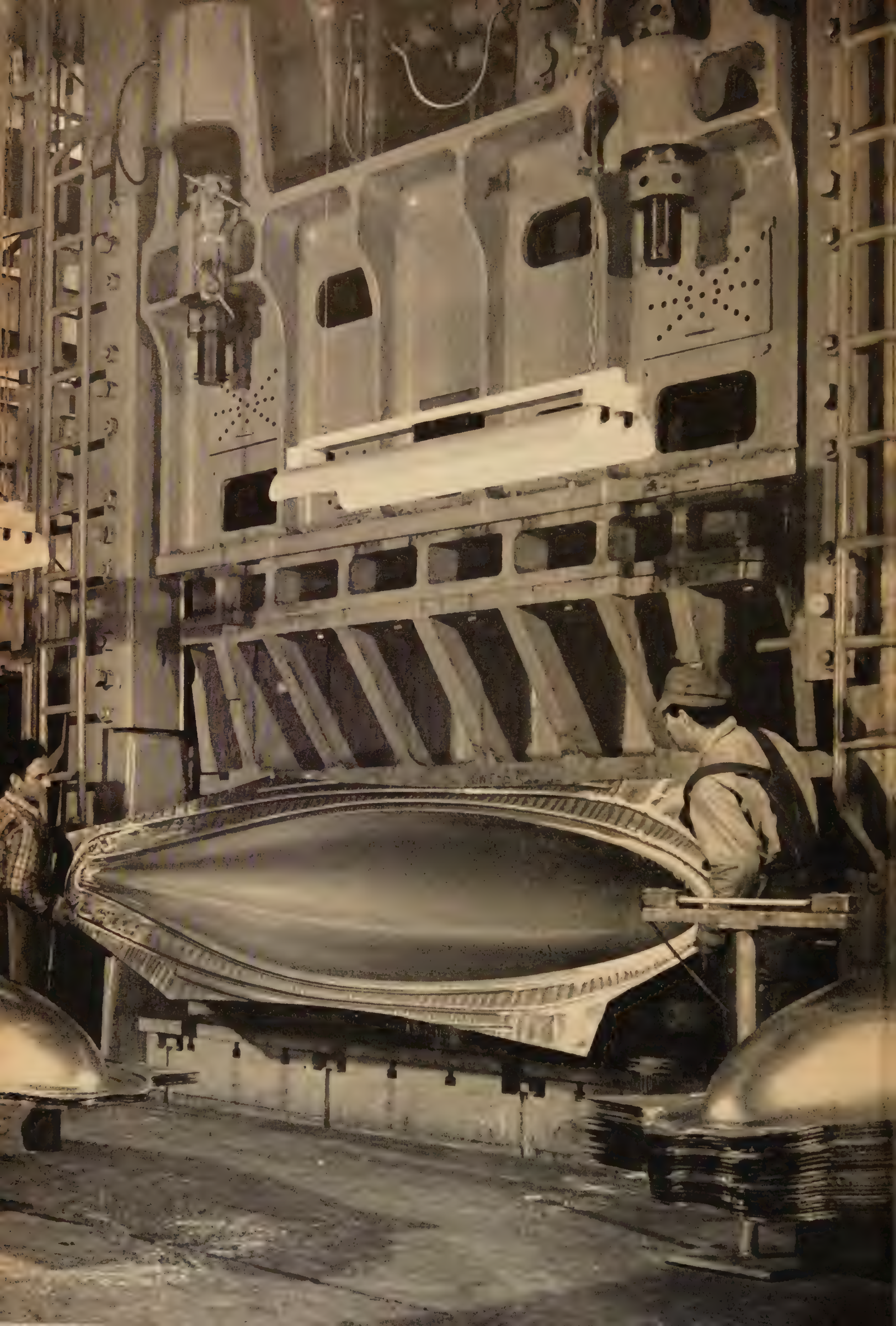


f You Want Subcontract Work...

By Guenther Baumgart
Chicago Association of Commerce and Industry

There Are A Number Of Special Procedures To Follow In Addition To Using Every Selling Device Available

HOW can I get a subcontract?" Basically, the answer to this question is that a company ust sell its services to those com- anies which already have prime ontracts with the federal govern- ent. Note the word "sell" for it essential to an effective search r subcontract work.

Any company seeking defense ork at the subcontract level must olicit business by every sales de- ice and technique it utilizes in eeking peacetime business. Such eacetime sales tools as solicita- ion letters, brochures, trade and usiness publication advertising, nd personal interviews with pros- ects are indispensable in seeking ubcontracts for war work.

A subcontract for war produc- ion is nothing more than a con- ract between two private com- anies. One — the prime contractor - already has a contract with the overnment. The subcontractor nerely agrees to supply goods or ervices to the prime contractor. There are, of course, "sub-subcon- racts," "sub-sub-subcontracts," and o on through many tiers of second- ry contractors, all supplying goods nd services in the production chain leading to the execution of the prime contract.

← "A subcontract for war produc- ion is basically a private contract be- ween two private companies" *Korth photo*

A subcontract may involve a small amount or millions of dollars. It may be for a simple item no different from those purchased by the prime contractor from the subcontracting company in ordinary peacetime business. On the other hand, a subcontract may be a complicated production responsibility, requiring new factories, new machinery and several years' work.

Contract "Buyers' Market"

At the present stage of the national defense program, federal contracting officers, prime contractors and many would-be subcontractors are unanimously agreed that many more companies are seeking subcontracts than there are subcontracts to go around. It is a buyer's market. Hence, those seeking subcontracts must work all the more aggressively if they are to get this type of business.

There are certain aids in soliciting subcontracts which are not available to companies seeking peacetime business. In the first place, companies wanting subcontracts will find that most government contracting officers will discuss the solicitation of subcontracts in their field. Therefore, a company soliciting subcontracts would be well advised to have a representative call regularly upon nearby contracting officers.

Lists of federal buying offices are also available. One each should be procured for Army, Navy, Air Force and civilian federal purchasing agencies. They are obtainable from the buying offices themselves and from the Government Printing Office, Washington 25, D. C. Ask for: "How To Sell to the United States Army" (30c), "Follow Me—A Guide For Selling to the United States Air Force" (free), and "Selling to the Navy" (15c).

The Chicago Association of Commerce and Industry has compiled a "Directory of Federal Government Purchasing Offices for Chicago Companies" for the assistance of companies in this area. The directory is available without charge from the association, One North LaSalle street.

Field service offices of the department of commerce also have a "Government Procurement Manual," available in their own offices and at some chambers of commerce, banks and other interested organizations. The field service has trained personnel to help a manufacturer use the manual in organizing his subcontract solicitation program.

(In Chicago, the field service office of the department of commerce is located at 332 South Michigan avenue.)

One of the most important aids to a company soliciting subcontracts is the list of companies which have been awarded "non-secret" prime contracts in excess of $25,000, their addresses, the kind and quantity of goods called for in the contract, the dollar amount of each contract and the name and address of the government contracting agency involved. This list, called "Consolidated Synopsis of Contract Award Information," is compiled and released by the department of commerce.

Ideal Prospect List

It is an ideal prospect list for the subcontract seeker, telling him exactly who his prospects are. The list may also provide leads to prime contract opportunities. If a manufacturer finds that the government has made a purchase of goods in his line, he may ask the government buying agency indicated in the list to include his company among those invited to bid or asked to negotiate on the next such purchase.

The award information list is published each week. Copies may be obtained from any department of commerce field office, but companies must send a messenger to pick them up. The department will not mail them.

Chicago firms may also obtain copies from the Chicago Association of Commerce and Industry which reproduces and mails them each week to concerns asking to be placed on this special mailing list. Several private publishers have also undertaken to publish and sell this bulletin as well as a daily prime contract bid invitation list that is made available, but not mailed by the government.

"Secret" Contracts

None of these lists include information involving "secret" contracts. A large volume of defense work is carried out under such "secret" contracts. By following newspapers and trade journals closely, a businessman will usually find references to the awarding of such contracts. Sometimes a company will be permitted to announce that it has been awarded a substantial order for the construction of weapons, airplanes or engines, yet the contract award will not turn up on the official list because it involves some classified information.

In addition to these aids to prospective subcontractors, there is an important selling technique which sets subcontract solicitation apart from ordinary selling. It is simply this: a company must emphasize its ability to meet specifications exactly. This is even more important than demonstrating ability to improve upon specifications, especially if the latter involves higher prices.

The best way to do this is by way of a very simple presentation of the facts about one's company. Elaboration is unnecessary. A recent supplement to the department of commerce "Government Procurement Manual" spelled ou these specific recommendations:

1. A party seeking a subcontrac should first prepare a general d cription of his plant, facilities an location.

2. Next, he should prepare a li of his equipment with brief d scription of the type, size an condition of machines. This information is very important, sinc a prime contractor will then b able to determine the size an character of the work which ca be done in the prospective subcontractor's establishment.

3. A statement should be mad as to how much machine capacit is available. In the preparation c this information, it would be we to describe the products which ar now being made or have been mad in the past, and, if possible, t tell the prime contractor whethe plans are to continue and at wha rate present products will continu to be made. In other words, th prime contractor will be concerne about the priority a subcontracto will give to the prime contractor orders. A description of the presen or previous products will, of cours considerably assist the prime contractor in determining the type c work which the prospective subcontractor can best handle.

4. A potential subcontracto should tell the prime contracto what his capacity or source of nev tools is — or would be. If tool are to be supplied by outside toc shops, it is most important tha the prime contractor know wher these shops are, because he is interested in knowing the time required to "tool up" the job he i interested in placing.

5. Prime contractors should b told what kind of delivery facilities are available. Is a railroa siding near? Can shipment be mad by air if required?

6. In selling services to a prim contractor, it would be wise t give a description of your organization and some information on you key personnel. Their experienc may be a good selling point. Als include the number and kind o employes on your payroll, and an other pertinent information relating to your labor force and th available labor supply.

7. A prime contractor will wan

(Continued on page 25)

Korth photo

A company should emphasize its ability to meet specifications exactly

LUKEWARM TO VERY HOT: THE SEARCH FOR AMERICAN RUBBER

By JOHN L. KENT

A THREATENING international situation has suddenly stepped up the pace of a scien- ic treasure hunt that has been derway in lukewarm fashion for e better part of the last half-cen- ry. The goal: economical methods cultivating natural rubber in the nericas.

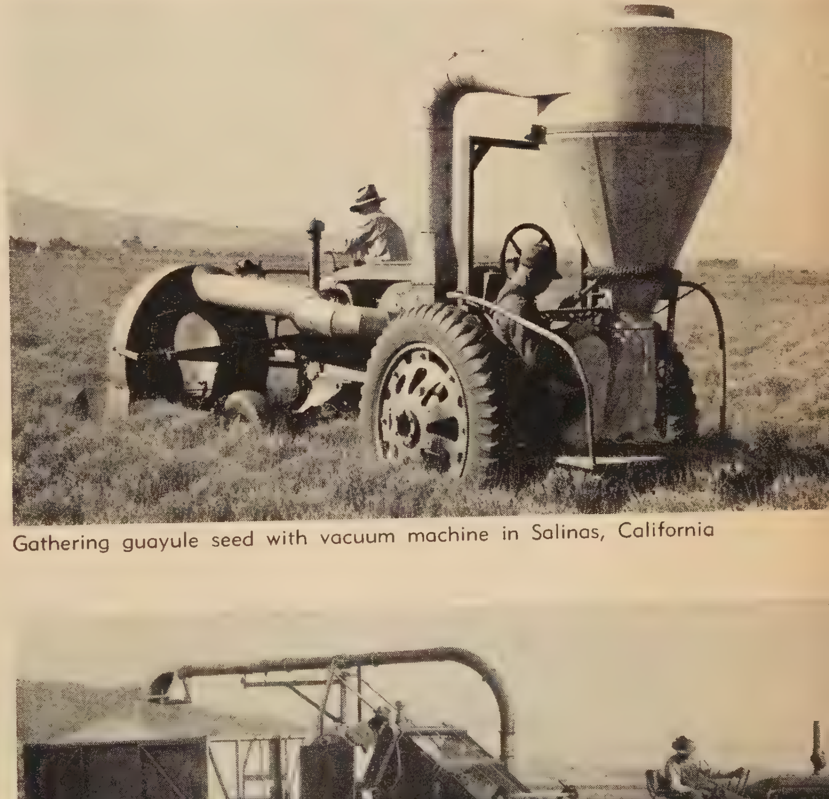
The urgency of the search for eans of growing rubber in this misphere is not difficult to un- rstand. By far the largest share the nation's natural rubber now mes from Southeast Asia planta- ons within easy Communist strik- g distance. And, although syn- etic rubber tires may be adequate r passenger cars, tires for trucks, n carriers and other heavy duty ilitary vehicles still require large rcentages of natural rubber to ithstand rough service.

Even now, the big Asiatic planta- ons are producing below capacity. rench Indo-China is producing nly about half of its annual ca- acity of 100,000 tons of natural ıbber. The Malay Peninsula is roducing close to its capacity of)0,000 tons, but on the other hand ndonesia is turning out only about vo-thirds of its potential 700,000 ons a year.

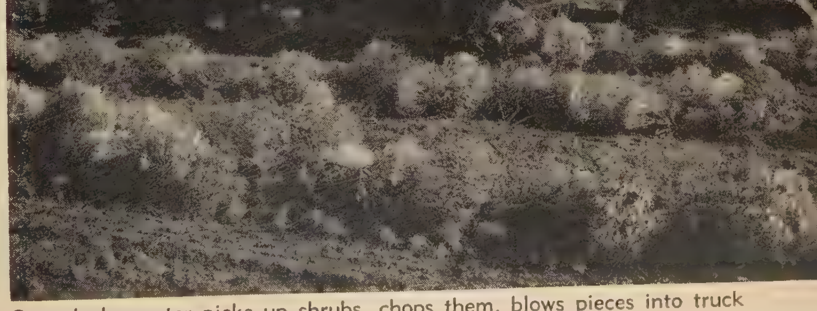
During the past three years the nited States has consumed an av- rage of 700,000 tons of natural ıbber. Meanwhile, synthetic con- ımption, which stood at 430,618 ons in 1948 and 397,139 tons in 949, will doubtless show a sharp ise in 1951 as the government's re-

(Continued on page 40)

Agriculture department worker collects Mexican guayule seeds for research



Gathering guayule seed with vacuum machine in Salinas, California



Guayule harvester picks up shrubs, chops them, blows pieces into truck

RADAR VS. A-BOMB

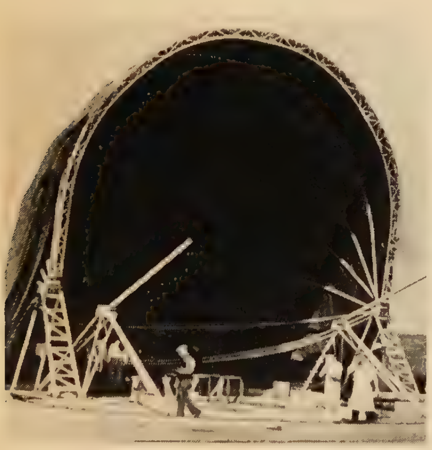
By Next June, America's Vast Radar Net Will Offer Partial, But Not Complete, Protectio

By MITCHELL GORDON

THE odds against a successful atom bomb attack against continental United States will rise sharply this summer.

The reason: by the end of June the United States Air Force expects to have a vast radar warning network raised along the nation's shores. The radar net, with its uncounted electronic eyes peeled for enemy bombers, will reduce the possibility of a successful attack. But – in the frank opinion of military experts – it will fall somewhat short of providing absolute security against atomic destruction.

Essentially, the radar warning system is designed to signal the approach of enemy planes while they are still about 150 miles out. The warning would give civilians a chance to seek shelter, and also give the military time to rush defending planes into the air to intercept the enemy before he could reach his target.



Beamless radar shelter of fiber glass & rubber is supported by air pressure

The radar net consists of a series of radar listening posts – exactly how many is a closely-guarded secret. In warmer climates, a radar post is a simple framework tower with living quarters for crew below and a semi-circular antenna rotating on top. In colder climates, the towers are enclosed and the antenna is protected in a pressurized rubber dome through which radar beams penetrate.

Coastal Defense Ring

The air force began building these stations early in 1950. They are being erected along the nation's Pacific coast, including Alaska, and along the Atlantic coast from the northern tip of Maine to the southern border of South Carolina. They're also being built along the Canadian border – with only a gap in the sparsely-settled area betwee Montana and Minnesota – to guar against possible attack from Russi across the Arctic. About half dozen "security areas" within th United States, notably atomic r search sites at Oak Ridge, Tenn Los Alamos, N. M., and Hanfor Wash., are being doubly protecte with their own radar networks.

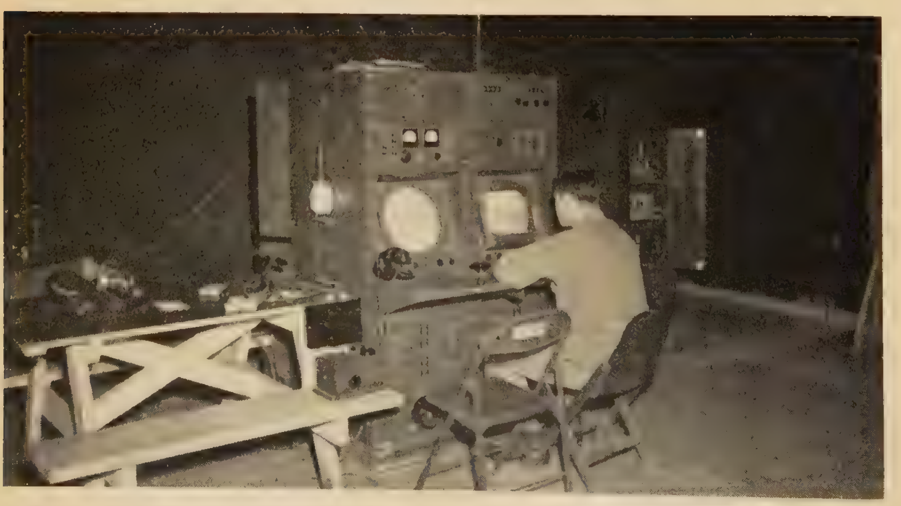
Pre-Korea, the radar system wa not scheduled for completion unti mid-1953, but Congress has sinc appropriated upwards of $50,000 000 to step up the completion dat to mid-1951. Some sections are a ready in operation – how man and in what locations are additional military secrets.

Upon completion, the radar ne will have cost well over $300,000,000 in construction and equipmen alone. In addition, however, American taxpayers will have to shell ou many more millions of dollars ever year for leasing sites occupied b the stations (the United States own less than a half-dozen sites) and fo ordinary operating expenses.

Gaps In Network

Even at this price, the Unite States is not buying complete insurance against a mainland "Pear Harbor." The net will not be a absolute guarantee against surpris air attacks, mainly because enem planes could sneak under it. Rada just can't do the job. Air forc officials readily admit this, thoug they insist their net will be bette than no warning system at all.

Enemy planes can sneak unde the net because of a basic weaknes in radar itself. Radar beams refus to follow the earth's curvature. In



Planes crossing beam are noted in operations room of radar listening station

Army Air Force photos

's a three hours' climb to this radar post atop snowcapped peak in Aleutians

ead of hugging the surface over e horizon, they shoot off into ace.

An enemy pilot wishing to take dvantage of this would simply ave to lower his altitude to, say, 00 feet, as he comes into radar's 50-mile range. So long as he reained below this altitude, he ould be able to come within 50 iles of a radar station before he ould cross the beam. He cannot e detected until he crosses it, beause the electrons in the beam ust hit the plane and bounce back s bright dots on a darkened radar creen before his presence is reealed.

Furthermore, the radar "net" has irtually unavoidable gaps, especialy where high mountains pierce the adar beams. In such places, an nemy pilot would not even be reuired to lower his altitude to void radar detection. The air force igures it isn't worth filling in all uch gaps because this would about riple the price of the project — to at least $1 billion, according to one estimate.

"We would rather have that extra money for more and faster planes," one air force colonel declares. "What good is it to know an enemy is coming, when you have nothing to send up to stop him with?"

Even with the gaps filled in, however, the enemy would be able to sneak in under the net. Why, then, is the country spending so much money on it?

In the words of one air strategist, "At least it should keep enemy planes coming low, and there are two advantages in that: it makes the plane an easier target and it makes it more difficult for an enemy bombardier to judge when to drop his bombs."

Additional Protection

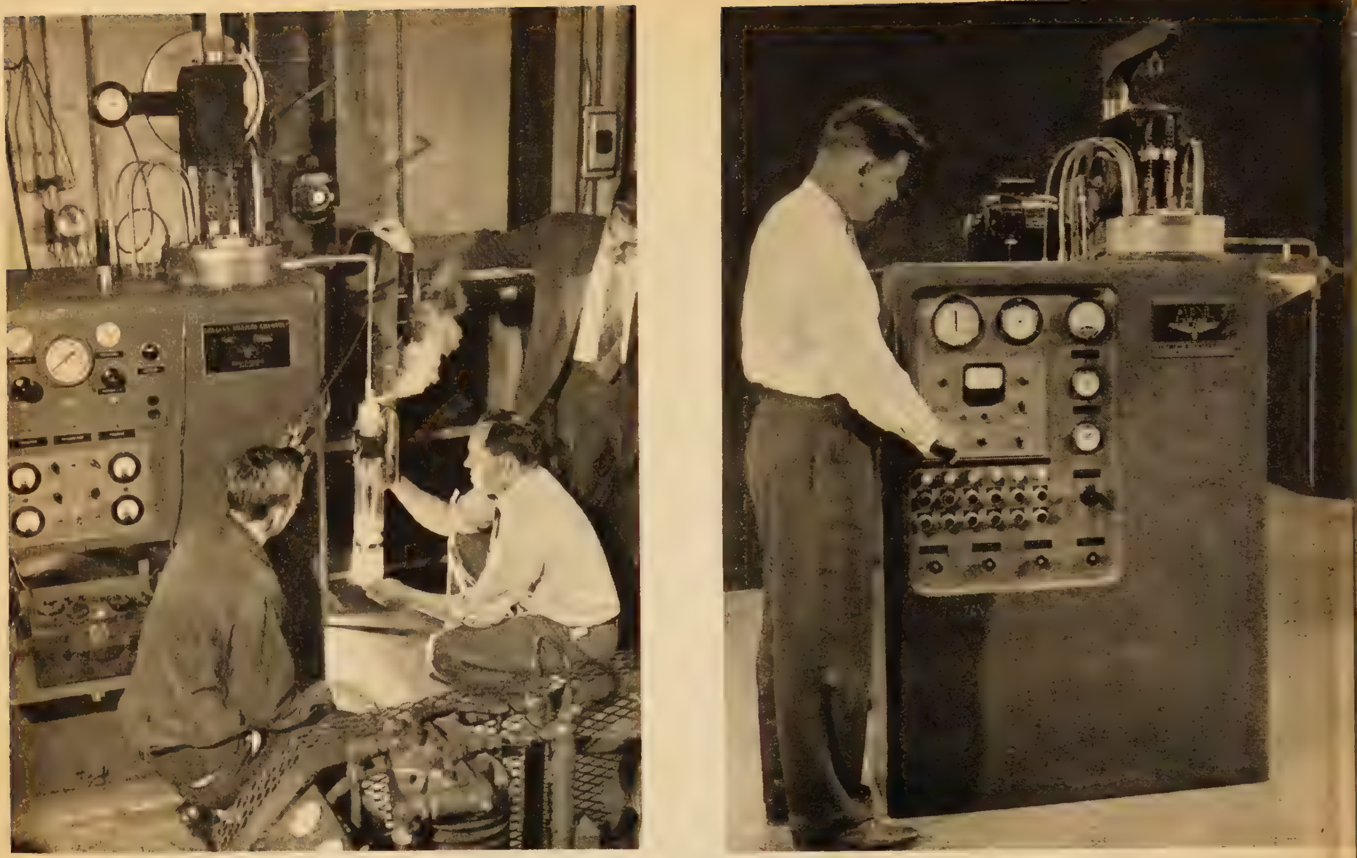
Air force officials concede that neither are tremendous advantages in an era of jet speeds and atom devastation. A plane moving at 600 to 700 miles an hour is an extremely difficult target even at low altitudes. And, if he is carrying atom bombs, pin-point accuracy is hardly necessary.

Military men also concede that in permitting planes to sneak under it, the net has a very serious flaw. To correct it, they've conceived at least two defense schemes so far — though neither are considered practical at the moment.

One calls for operating a "flying net" above the one on the ground. Radar-equipped planes would train their beams downward to scan the area over the ground station's horizon. The Navy recently converted a Constellation to experiment with this idea. However, Navy men report that keeping such planes in

(Continued on page 33)

Replica of intricate radar equipment being used in nation's $300 million net



Complicated "Helium Cryostat" designed by Arthur D. Little, Inc., for "super-cold" research by industry

A Chilling Story . . . .

Look Out—When The Thermomete Hits Bottom at –459!

Science Probes A Weird World Near "True Zero"

By VERNON E. BRINK

DURING their frigid winter campaigns of World War II, German and Russian soldiers often confronted a more sinister foe than the enemy beyond the front lines. As the temperature dove far below zero, nature began playing weird tricks. Bayonets, taken from warm barracks into the bitter cold, shattered as if made of glass. Gun mechanisms jammed, artillery range-finders went out of kilter, and giant caterpillar tank treads split open at the slightest movement. Even breathing became a major, and sometimes, fatal effort.

Such low-temperature freaks — which have been experienced more recently by American forces in Korea—are but a hint of far stranger occurrences when the mercury is scientifically depressed in the laboratory. Even Siberia's 90-degree-below-zero record of 50 years ago is sizzling hot compared with indoor temperatures now being achieved by a little-publicized group of scientists called "cryogenists." After years of painstaking research, these sp cialists in super-cold have succeede by means of new equipment an techniques in pushing laborator readings down to all-time lows 459 degrees below zero.

This is only a fraction of one d gree above what cryogenists ca the lowest possible temperature absolute zero (0 degrees on the Ke vin scale or minus-459.6 degrees o the Fahrenheit scale). Theoreticall no heat remains in any substan at absolute zero. Ordinarily, a matter contains heat or, as physicis call it, thermal disturbance. Th higher the temperature of a su stance, the faster its molecul dance about. The lower the te perature, the slower the motio Cryogenists believe that if absolu zero were attained, all molecul motion would stop.

No one of course has ever froz a substance to absolute zero a apparently, no one ever will. B entists believe they will eventual- succeed in driving temperatures wn to perhaps a millionth of a gree above absolute zero.

The laboratory campaign to rink the thermometer to record ws is anything but idle dabbling r curiosity's sake. By studying the havior of substances at close to solute zero, scientists are learning y materials act the way they do normal temperatures. Thus, they e paving the way for important w scientific advances. Better gaso- e, tougher steel, more durable bber and improved glass are just few among many products emerg- g from cryogenic laboratories.

Nature Plays Tricks!

Physicists have discovered that eryday articles undergo radical anges in the incredibly deep cold oduced in modern cryogenic lab- atories. A tennis ball chilled to 0 degrees below zero drops to the oor with a dull thud, and no ounce. A banana, dipped a split cond in super cold, shatters like n icicle when dropped. A tender eak, after being immersed in ience's deep freezer, can be splin- ered with a hammer; iron and steel rumble from a gentle tap. Other etals, when subjected to intense old, become super-conductors of lectricity, losing all electrical re- istance.

Another significant aspect f low-temperature research s the opportunity it affords o probe into the mysteries f matter itself. Consider elium, the lighter-than-air, ombustible gas used in balloons and airships. When educed to 456 degrees be- ow zero, helium becomes a iquid. But what a liquid! ts weird antics are un- erving — even to scientists.

If you place an empty ar in the center of a tank alf-full of liquid helium, he helium climbs right up he sides of the jar and lows into it! In other words, liquid helium defies the law of gravity. If you were to put some liquid helium in a cup and stir it with a whirling motion, it would whirl forever — forever, that is, if it did not evaporate. Science calls this strange behavior "super-fluidity" and some think it may be a fourth state of matter. One physicist believes that further research with liquid helium may lead the way to fundamental discoveries about matter as important as those made possible by nuclear fission.

Research Increasing

Most super-cold temperature work in the United States is sponsored by the Office of Naval Research and much of it is kept secret. Twenty-five years ago there were only five laboratories in the world, three in Europe and two in North America, equipped to work at the low temperatures where gases such as hydrogen, oxygen, nitrogen and helium became liquids. Today about 30 cryogenic laboratories are scattered across the country at such places as the University of California, Johns Hopkins University, the Massachusetts Institute of Technology, and the National Bureau of Standards. Commercial organizations such as General Electric Company and Westinghouse Electric Company are also beginning low-temperature programs.

Until a few years ago every cryogenic laboratory had to construct its own low-temperature equipment at tremendous expense, but this obstacle is now being overcome. Arthur D. Little, Inc., a chemical and engineering firm, now provides low-temperature apparatus for any company or institution interested in cryogenics.

Westinghouse Electric Company has a typical cryogenic laboratory in East Pittsburgh, Pa., where Dr. Aaron Wexler and his associates can produce custom-made temperatures down to 452 degrees below zero as swiftly and automatically as a house refrigerator freezes ice cubes. With the aid of special techniques they can drop to within one-tenth of a degree of absolute zero.

Producing "Super-Cold"

A scientific description of how such low temperatures are achieved would be rather steep reading for most laymen. Essentially, the cold-making process starts with helium gas stored in tanks attached to the ceiling of the laboratory. The gas is piped into a special, four-stage compressor system where its pressure is greatly raised. Throughout the process electronic and mechanical controls stand guard over the high pressures enabling the scientists to keep a constant check on the "cold" production. This high-pressure gas is then put to work driving two piston engines and in so doing gives up a large amount of its energy in the form of heat — thus cooling it.

The process is repeated, lowering the temperature still further. Then a portion of the gas is allowed to expand through a small opening, cooling it to about 452 degrees below zero, and changing the helium to liquid form. Temperatures a fraction of a degree above absolute zero can be obtained by pumping a vacuum above the liquid helium. This liquid "cold" is bottled up in a five-foot cylinder in the center of the apparatus. Materials to be studied then can be lowered into the cylinder, which is carefully insulated to prevent heat from leaking in.

As can readily be seen, cryogenics is not for the weekend hobbyist.

Gravity appears to be defied when magnetic poles cause super-cold liquid oxygen to climb sides of glass flask

(Continued on page 45)

Ewing Galloway

Blacksmith Shop at Edison Institute, Henry Ford's tribute to the great inventor

In the rush of 20th Century research . . .

HAS INDUSTRY JUNKED PRIVATE INVENTORS?

If so, we may be losing the genius of modernday Edisons

By BENJAMIN MELNITSKY

IT IS a curious paradox that a nation which owes much of its industrial greatness to the inventive genius of men like Eli Whitney, George Westinghouse and Thomas Edison is now inclined to regard an "inventor," toiling away in his unkempt home laboratory, as something of a lone-wolf eccentric. Stranger still is the fact that many industrial concerns harbor the assumption that inventive genius of Westinghouse and Edison calibre can be assembly-line produced in mammoth, richly-endowed research laboratories.

No research laboratory, no matter how lavishly equipped, can take the place of true inventive genius. Our growing preoccupation with industrial research has produced a dangerous decline in individual inventive enterprise. Yet we can no more afford to lose the services of today's inventors than industry can afford to scrap the products of Edison's "lone-wolf" creativeness.

The skyrocketing growth of industrial research in recent years has obscured the role of the individual inventor. In the rush of Twentieth Century research, he has been labeled unnecessary and tossed into the industrial attic as a quaint, but no longer useful, heirloom.

Industrial Heirloom?

The fallacy of this viewpoint was emphasized by Dr. Vannevar Bush at a Congressional hearing shortly before World War II. There are many ideas in this country, Dr. Bush declared, "which are produced not by a group, but simply by reason of the fact that there are individuals who have the keenness of analysis to see before anyone else a trend and a need, and to put t gether a combination or devic which will satisfy it. We need thos people."

The late Dr. Frank B. Jewet echoed these sentiments at the sam Congressional hearing. Asked whether his Bell Telephone Laboratori found it necessary to consider idea of outside inventors, he answere "absolutely! We are continuall either buying patents or more frequently in recent years obtainin rights under patents."

Inventiveness Needed

Fortunately, many of our large firms continue to utilize the ser ices of independent inventors. H is welcomed at the Bell Labs, Ge eral Motors, International Busine Machines, and other concerns wit tremendous research laboratorie This fact alone certainly demonstrates that the industrial researcher and the outside inventor are n in competition with each othe The reason is simple: invention an research perform wholly differen functions.

How many industrial researc departments have equalled the i vention output of James H. Ran 3rd? Still in his thirties, he has t his credit the Remington-Ran electric shaver, a massaging ma tress for hospitals which eliminate painful and sometimes fatal be sores, a vacuum washing machin which was judged the most valu able invention of 1949, a drip-proo faucet, a fabric rated 10 time warmer than wool, an electroni device which prevents heart failur during delicate surgical operations To these can be added an electronic burglar alarm system, nonwetting diapers, a wheel chair which can be operated with the tongue o its paralyzed user, a cycle respirator which enables patients unde anesthesia to breathe easily, a typ of ball point pen, and a nove watch strap.

This is the output of but on modern inventor. The Diesel engine, phenolic plastics, monotype case hardened steel, gyro compass calcium carbide, Polaroid, the diaphone, the flotation process, an most of the other important Twentieth Century inventions have com not from the cooperative labora

(Continued on page 28)

A Psychologist Looks At TELEVISION

inding that programs have sharp differences in "class appeal"

By HARRIETT BRUCE MOORE
Director of Psychological Research
Social Research, Inc.

As practically everyone knows, television is the most widely discussed entertainment and advertising medium of modern times. And, practically everyone — from child psychologists to your barber — has put in his two cents worth on the merits and demerits of Faye Emerson necklines, brewer-sponsored Pulitzer Prize plays and color TV. Quite apart from opinionated chit-chat, the following article is the result of a systematic attempt to gauge the advertising impact of television. It is based on the first of a series of psychological studies by Social Research, Inc., of Chicago, and — in the words of the author — gets down to "fundamentals." In other words, the impact of television upon various segments of American society. Detailed analyses of this 66-page study are available through Social Research, Inc. The Editors.

AMERICAN society can be divided into six major classes, each with clearly distinguishable modes of living. The two largest social classes, both numerically and in terms of receptivity to "mass advertising," are the so-called "upper-middle" class and the "middle majority." The "upper-middle" class comprising about 12 per cent of the population, provides the chief market for quality goods. The much larger "middle majority," comprising about 65 per cent of the population, constitutes the real backbone of total consumer spending.

Advertising and entertainment addressed to one of these social groups is sometimes regarded with indifference or distaste by the other.

Burr Tillstrom & Friends: They deal in problems of the "upper middle classes"

Kate Smith & Friend: "Personification of the stable, self-controlled 'middle majority' wife and her slightly adolescent, but basically good, husband"

While many people in all social classes use the same toothpaste or soap, they are frequently stimulated to buy them by wholly different reasons. From the television advertiser's viewpoint, this difference begins with the TV set itself.

In entertainment, as in travel, education, and intellectual interest, "upper-middle" class people are eager to acquire sophistication, cosmopolitan poise, and individuality in character and taste. Since television seldom satisfies such desires, "upper-middle" class people are casual in their attitudes toward this medium. Their viewing time is erratic and their "loyalty" to TV is far less pronounced than that of the "middle majority."

In "upper-middle" class homes, TV is for relaxing, even killing time when there is nothing else to do. Except for special programs, television will not cause rearrangement of household activities, dinner times and social affairs. Even in idle time, TV must compete with varied interests which are carefully protected in the "upper-middle" class home.

In contrast, "middle majority" families not only spend a large part of their free time watching television, but actually make time to do so. It is not uncommon to find a "middle majority" family watching television five to six hours almost every night, not to mention Sunday afternoon. "Middle majority" viewers tend to become more involved in programs. They are also more enthusiastic about television-per-se, and as a result other entertainment activities have been curtailed to a greater extent. Television is especially appealing to the husband who has spent eight hours in detailed office work or actual physical exertion. It is his idea of relaxation at its best.

In our initial television study two typical programs have been analyzed in order to determine how they attract and hold different audiences. The Kate Smith show and Kukla, Fran, and Ollie were selected because they are slanted to wholly different audiences. Each analysis considers the emotional meanings presented, the audience and its responses, and what these facts mean to the sponsor.

Soap Opera Resemblance

The Kate Smith show, a one hour, afternoon TV program, is a variety show. Homemaking and human interest features are interspersed with singing, dancing, "personality" interviews, news and a daily fashion discussion. Although Kate Smith sings now and then, her main job is to guide the audience from one feature to the next.

The show's audience is composed primarily of "middle majority" housewives, as are all Kate Smith shows and most daytime TV programs. Some of the characterizations of Kate Smith's behavior are actually characteristic of many soap operas. In the first place, Kate Smith is the complete mistress of her world. Ted Collins, her program teammate, symbolizes a belittled husband. This typically soap opera wife-husband relationship mirrors the presumed reality of the stable and self-controlled "middle majority" wife and her impulsive, slightly adolescent, but basically good, husband. It is always clear that Kate Smith is the superior and Collins the beloved retainer.

Housewife's Viewpoint

Kate Smith, emphasizing "middle majority" family values, symbolizes the controlling "middle majority" housewife, the center of her vastly important litle world. The star of the show never fails to draw from her guests some informational tidbit which can be related to family life. She is sure, for example, that the "folks back home in Puerto Rico" will be proud of Jose Ferrer when his new movie is premiered there. Thus, she reinforces the "middle majority" housewife's conception of a world having its geographic center in the home.

The star also tells the housewife how to "keep her man." In the fashion of a motherly counselor, she offers advice which, presumably, will make her listeners look prettier and less like overworked housewiv Sometimes, this advice is approp ate to the "middle majority" wo an; other times it is beyond h reach but nevertheless gives her knowledge of current styles and feeling that she is in touch wi the practices of higher status grou

Furthermore, Kate Smith tells t housewife how to enhance her st tus as homemaker. Features on coo ing, food preparation, table setti and the like strike close to t "middle majority" housewife's ma reason for existence. They reinfor her feeling that home and hom making are the most worthwhi things in life.

In considering audience reacti to this type of program, it must remembered that the housewi feels she cannot watch televisi for a full daytime hour. Neither h work nor her conscience will allo it. She may watch spasmodical without a sense of industriousne but she is nevertheless fearful being inveigled into prolonged tel viewing.

Kitchen Vs. TV

In view of such feelings, th housewife's willingness to watc Kate Smith is interesting. In co trast to nighttime programs, whic "middle majority" watchers ma view almost automatically, a da time program must be regarded really worthwhile to justify a hous wife taking the time to watch it.

Few housewives interviewed ha watched an entire daytime show o any one day. Most had watche only parts of the show two or thre afternoons a week, moving bac and forth from kitchen to TV se Actually, the housewife may hav time to watch the whole progran but to do so is to admit to herse that her job is not as important she conceives it. It is a problem the producers to make such show interesting and "educationa enough for housewives to forg they should be working.

The variety elements of suc shows are liked, at present, by mo watchers. But, in terms of lon range audience maintenance, it likely that these features will the least watched, since housewiv may feel they cannot afford to watc features that are purely entertai

(*Continued on page 26*)

Kukla, Fran and Ollie: "Much about nothing, relaxing accompaniment to cocktails"

inancing Undeveloped Nations

By EUGENE R. BLACK
President, International Bank for
Reconstruction and Development

Eugene R. Black

ON November 10, shortly before the Korean war took so grim a turn, Mr. Gordon ay's report to the President on reign Economic Policies was pub- hed. This, the first public docu- ent to gather together the loosely ngling threads of American for- gn economic policy and weave em into a coherent pattern, is a cument which deserves attention. Among other things, the report ints out the importance of giv- g the underdeveloped countries a eater opportunity to raise their andard of living. It emphasizes e gradual nature of the develop- ent process and describes the ob- acles which have to be overcome accelerate it. And it reaches the nclusion that the United States, its own self-interest, should make lditional financial and technical sistance available to the less de- eloped countries of the world. The rder of magnitude of the annual ollar assistance from other than rivate sources that the report ecommends is $500 million in rants, and $600 to $800 million in oans; of the loans, half or more is xpected to be provided by the In- ernational Bank.

Calendar Counts

It would be a natural reaction to ecommendations of this sort to say hat what seemed good on Novem- er 10th no longer makes sense on anuary 10th. So far as the amounts re concerned, there may well be ruth in this. But as for the prin- iples involved, they were, in my udgment, never more alive.

Economic development, as a term, as been much in fashion recently. But, as a process, it is nothing new. In the last 150 years development has proceeded very rapidly in certain parts of the world, in Western Europe, in Japan, in the countries of the far south, Argentina and Uruguay, Southern Africa, Australia and New Zealand, and, above all, in North America. In these countries a high standard of living has been achieved and a large store of capital built up in spite of the great dissipation of assets in war, particularly the two World Wars.

In the rest of the world, where three-quarters of its population lives, there has also been some progress. Millions of people have engaged in the production of commodities like tin, rubber, coffee and cocoa for the world market, which, however fickle it may have been, has provided a source of income much above their previous level of primitive subsistence. Ports, railways, power stations, whole new communities, have been built, partly to bring these commodities to market, partly to serve the general economies of these countries.

But progress has really touched only a fringe. As the standard of living of the world has advanced, the gap between the highest and lowest has widened. The bulk of the people in the underdeveloped countries are peasants, for most of whom the horizon is bounded by a small patch of land. And this land, as like as not, they do not even own, but work for another with poor and primitive tools. Or if they do own it, they are likely to be so in debt that it makes little difference. They would have little incentive to improve the land, even if they knew how or had the means; but mostly they are illiterate.

They live in small one-room huts, which, often, they share with their few animals. Their diet is deficient, their stamina poor and they are a prey to disease; if medical science has brought them benefits, they are two-edged, because every child that is saved, every old man whose life is prolonged, is another mouth to feed. The villages in which they live are often remote from the few main arteries of transportation; if they are on a road, it is frequently impassable in the wet season. Storage is rudimentary. Local plenty in one district can thus be quite compatible with local famine in another. In many countries the average income is no more, and is often considerably less, than $100 a year. In many countries, too, the average life expectancy is little over 30.

Disparity Problem

Why this disparity should have arisen is disputed. Some on one side would claim superior thrift, industry and initiative; some on the other that the less developed nations have been cruelly exploited. Climate has been judged the villain of the piece. But this is a futile argument. The real question is how to prevent the disparity from widening still further.

As the task of development is to raise whole regions and sometimes whole countries out of their poverty and backwardness, heavy investment is needed in highways, water supply, storage, power, housing and,

SPEECH
OF THE
MONTH

Made before the Bankers Club of Chicago,
January 10, 1951

equally important, health and education services. All this requires capital, but as the capital available is at best limited, careful planning is necessary to obtain the best results. If development is undertaken haphazardly it stands little chance of success; it is normally necessary to draw up a program for investment for several years ahead. The projects in that program have to be chosen judiciously. Their timing must take account of the interdependence between them; it is no use double-tracking a railroad before the port is ready to receive its freight. There must be the right kind of training for labor and the professions; a surplus of lawyers will not make up for a lack of mechanics. The program has to be drawn with sufficient flexibility to meet unexpected contingencies.

Tax Overhaul?

The poorer a country is, the less it can afford waste and the more careful it must be to husband its resources and use them to the best advantage. Idleness, inefficiency and corruption can be tolerated least of all in a poor country. And so the most necessary forerunner of development may well be the kind of domestic action which costs hardly any money at all. Very often the tax system needs overhauling in order that the rich may bear their proper share of the burden. The power of particular labor unions may need curbing. The monetary system may need tighter control to prevent inflation.

Of all the reforms which we have seen to be desirable, reform of land tenure, however difficult to achieve, is probably the most important. The need for land reform is widespread, because the whole basis of development is the land. Its effect on development might be remarkable, for, if people are freed from the deep-rooted conviction that, whatever they do, they cannot prosper by their own efforts, they may show initiative in far greater abundance than we suspect they possess. It is not without significance that land reform is one of the main planks of Communist propaganda.

Unfortunately the influence of special interests in the underdeveloped countries and their resistance to reforms in the general interest are certainly as strong as they are in the more developed; such vested interests are often very well entrenched. This is another reason for having a well-concerted plan of action. If particular groups are to be ranged on the side of the general interest, it is necessary to show them what the general interest is and to obtain the widest support for it.

In all these matters the governments of underdeveloped countri require tactful but firm suppo for the best course is not alwa the most immediately popular an politics may bedevil the whole co duct of development. The Bank, i its operations, has tried to give th kind of support. We have constan ly urged the underdeveloped cou tries that they draw up a soun program of investment and tha they formulate and put into actio the economic policies necessary fo its fulfilment. We have sent mi sions to a number of these coun tries, in some cases to investigat particular sectors of their economie such as agriculture, in other case to take an inventory, so to speak of the entire country's resourc and needs.

Time Needed

A program is not, of cours enough; it has to be financed. Wit their small stock of capital an their low income, it is clear tha the underdeveloped countries coul progress only gradually if they ha to rely on their own savings alon however wisely they might be invested; it would take decades t make a sensible impression on thei poverty. In fact, in countries wher the population is increasing rapidly, it would be all they could do t prevent the standard of living fro falling.

In order to accelerate the proces of development, these countries require capital from abroad. There i hardly a case in the past where th early stages of a country's development have not been carried ou with the help of foreign capital and almost always private investor provided the funds. Some capita was obtained by selling bonds, bu there was also a large contingent o equity money for development. Private companies built and operate railroads, ports, waterworks, electricity systems; they developed land The equity stockholders took risks Some got quick and lucrative returns, many others never saw dividend. Today, for reasons whic I will not go into here, that kin of equity money is not forthcoming not at any rate for the public services which are needed as the basi of expansion.

But there is still the same kin

(Continued on page 36)

"Where's that gift of gab your sales manager's so proud of?"

Subcontract Work

(Continued from page 14)

know whether you maintain lequate cost records — records hich would satisfy government reuirements. Can these records be erified by government audit? Will ou be prepared to give the govnment copies of your invoices to our prime contractor? Or invoices om your own suppliers?

8. Prime contractors are interted in the current financial tings of those they are considerg as subcontractors. Often a rime contractor may find it adisable to supply you with exensive materials and tools, and efore he moves these things into our plant, he will want to know omething about your financial anding. Any information that you olunteer on this point will be of reat usefulness to the prime conactor.

9. Be sure to relate your previus experience as a subcontractor you acted as such previously. ive the names of the companies or which you subcontracted and hat you produced for them. (Esecially helpful will be a descripion of your company's World War I work.)

All May Not Be Needed

Many prime contractors will not equire as much information as he department of commerce sugests. Frequently an equipment ist, mimeographed in a simple orm, will be adequate to get tarted and more detailed informaion can be supplied later. Such ists should be provided for all rospects interviewed or solicited y mail. It is also wise to mail hem or leave them with government contracting offices. And, of ourse, no salesman need be told hat if he doesn't hear from his rospect after the first interview e should follow up regularly and ystematically!

When discussions between a prime ontractor and a prospective subontractor approach the actual signng of a contract, there will be ertain important details to work out and certain clauses of the ontract which the subcontractor will want to check to be sure that e can meet exactly.

For example, on certain con-

here's what load-center **power distribution** can provide–

- ★ continuity of service
- ★ allowance for expansion
- ★ flexibility for changing loads
- ★ proper voltage conditions
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K-B service is comprehensive and convenient . . . a single organization with 42 years experience in combining surveys, layouts, engineering, procurement, and construction into one efficiently integrated package.

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Another Satisfied User of Airkem . . .

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LET AIRKEM SOLVE YOUR AIR FRESHENING PROBLEMS!

Managers of businesses and institutions are paying more and more attention to the quality of air indoors. Stale, stuffy air—tainted with odors — is unpleasant to patrons, customers or guests . . . and employees too. It affects comfort and vitality . . . conditions attitudes towards you . . . and has a marked effect on employee efficiency and good-will.

Write or phone for details about this proven economical new chlorphyll air freshener for your business.

Airkem Chicago, Inc.

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Phone SEeley 8-2851
CHICAGO 7, ILLINOIS

tracts involving national security, subcontractors must be cleared by an appropriate security officer before receiving information necessary to bid and manufacture. The prime contractor usually requests the government contracting officer supervising his contract to have a subcontractor's plant surveyed for this purpose. A subcontractor, however, can request the survey himself, but this procedure usually requires more time, because most contracting officers require some evidence that the prime contractor wants the subcontractor cleared.

Zum Rothen Stern

★

A RESTAURANT
OF UNCHANGING
CHARACTER . . .

★ Times have changed but not at RED STAR INN, Chicago's famed, quiet, homelike restaurant. . . . .

★ It reminds one of the OLD WORLD. Since 1899 RED STAR has been a mecca for men and women who relish a real finely cooked meal, served graciously with zesty Wine and beer. . . .

★ Among the notables who felt at home here were Julius Rosenwald, Charles Wacker, Oscar Mayer, Carter Harrison, Flo Ziegfeld, and a host of others. . . . .

★ Visit RED STAR INN—bring the entire family for truly remarkable dining. . . . .

CARL GALLAUER, Founder
WHitehall 4-9637

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Lead & special mixture coatings.

Operating largest facilities in the industry.

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LAKE & LOOMIS STS.
MOnroe 6-0921

The contractor will also want to determine to what extent he will be required to comply with the Walsh-Healey Act which requires that contractors and subcontractors to the federal government comply with certain wage and hours standards.

The subcontractor will want to check clauses making reference to such terms as: "contingent fees," "renegotiation," "labor discrimination," and "wage rebates." Often these clauses refer to a law, a regulation, or a specification which is identified in the contract, but not written out. A prudent contractor will check the text of such references to be sure that he will be able to comply with every detail involved. The prime contractor, the contracting officer in the branch of service which made the prime contract, the government printing office, department of commerce field offices, and private reference services are helpful in providing appropriate full texts.

Some prime contractors purchase by purchase order, telegram, or even telephone. In this event, there may be no contract clauses to b checked. Federal laws and contrac ing regulations, however, hold th subcontractor responsible for compliance with whatever requiremen would have been imposed upo him by a formal contract. It i the subcontractor's responsibility t check with his prime, or with contracting officer, to determin his position.

Subcontracts are well worth company's effort to acquire an execute. Defense contracts, bot prime and sub, are with few exceptions, an assurance of priorit ratings in the allocation of materials.

And in no case is the governmen interested in seeing either prime o subcontractors sustain a loss o work done for the government. Th government, of course, does no guarantee that a company will no sustain a loss. It does, however, hav certain financial aids available t its suppliers — and it does gran certain tax advantages to companie acquiring facilities for defense production.

A Psychologist Looks At Television

(Continued from page 22)

ment. The total structure requires a strong emphasis that the show is a Kate Smith show, playing up the interaction between the "main figure" and the individual housewife-viewer. If this interaction is lost in the shuffle of other features on the show, viewing will decline.

At present this program carries only a few commercials introduced by Kate Smith and followed by short film commercials, then final complimentary remarks by the "main figure." Spot commercials at 15 minute station breaks have no apparent connection with the show. Only a small portion of the housewives interviewed could remember any products advertised, either during the show or at the station breaks. Many thought the program had no commercials — a reflection of the number of women who watch only a short time.

There is a real danger of so overloading such shows with commercials that the housewife will decide that she should get back to work. In general, the appearance of commercials is a perfect stimulus t get the housewife out of her chai and back to the kitchen. Unles commercials are well spaced, housewives will watch the features, the leave as soon as the commercial come on, perhaps to return later.

The outlook for productive advertising of household items on suc a show is very good, provided commercials are tied in closely with th show and are not crowded togethe Unless these precautions are take however, the show may have a larg audience for non-commercial features and lose much of the audienc at times when the commercials ar on.

Kukla, Fran and Ollie, a hal hour puppet show which appear five times a week, is different i many ways from the Kate Smit show. Each show of the two-yea old series deals with some episod in the lives of the characters. demarcation between flesh-an blood Fran Allison and the puppe as whimsical human surrogate simply does not exist. The puppe e as much alive to Miss Allison Charlie McCarthy is to Edgar ergen.

KF&O's audience is significantly eighted with "upper middle" class lults. Children constitute another oup which cuts across class lines id it is possible that a third au- ence of lower class adults is sub- antial. The meaning of the show these different groups is quite fferent. This discussion deals ainly with the show's appeals to ıpper-middle" class adults. "Lower- iddle" class adults have percepti- ly little enthusiasm for Kukla, Fran ıd Ollie.

The artistry of this show is ap- eciated in "upper-middle" class inds. The program apparently is ıost warmly received by viewers ho have or want intellectual and ocial sophistication. Its advertising alue is determined largely by its ıeaning to either the real or the otential audience.

Attraction Of Originality

The unreality of the show's char- cters is attractive to "upper-middle" lass adults, who cherish originality nd imagination, and who enter nto it without fearing that they vill be considered foolish. The middle majority" adult, on the ther hand, prefers that imagina- ion stick to convention. A clown is nore acceptable to him than Ollie, he dragon with a college educa- ion. To the intellectually flexible, he absence of props, the unseen mailroom and kitchen below stage ıre stimulating. The "lower-middle" lass adult, however, likes to appear ational, and as a result does not avor fanciful situations.

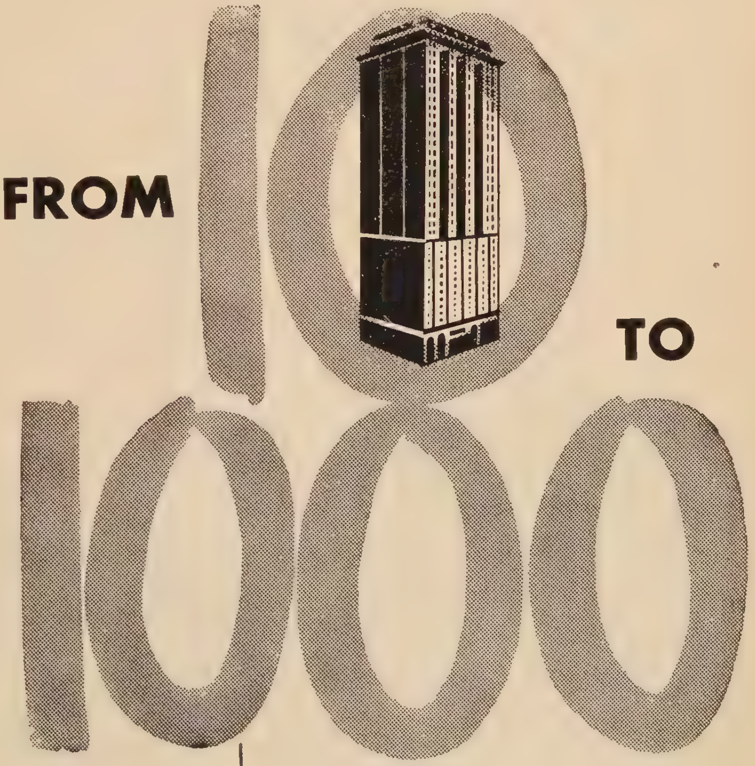
Kukla, Fran and Ollie's world is ophisticated, catering to the values f "upper-middle" class people. French, the opera, ballet, and ama- eur theatricals are involved in such 'plots" as exist, reflecting the inter- ests to which the "upper-middle" class viewer subscribes — or feels he ought to. The characters are adult and self-reliant. (With the excep- tion of the infant dragon, "Dolores," everyone is grown up.) At the same time, Kukla is the failure in all of us. He personifies the poignant obedience and conformity that never paid off, the good intentions that fell to nothingness. He por- trays most skillfully the regrettable truth that virtue often must be its own reward.

As for audience reaction, opinions regarding Kukla, Fran and Ollie are influenced in part by the attention given to the show by critics and television stylists. The emotional appeals of the program are closely geared to the values and needs of the "upper-middle" class, insuring a favorable response in that group.

Another aspect of "upper-middle" shows of this type is that they are presented lightly and casually — very much about nothing, a relaxing accompaniment to the pre-dinner cocktail. The emphasis is not on what happens, but on how it happens. The audience is not "compelled" in any sense; thus people respond to the show as "amusing," "delightful", "fun" — with pleasant but not intense feelings. Action is subordinated, but interviews show the audience feels that the wit and conversational range more than make up for this.

The "lower-middle" class adult is typically intolerant of what he regards as childish — the quick shifts from phantasy to reality imply a

FROM



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lack of self-control to him, and the ease of the patently bizarre situation implies a lack of "good sense." He is likely to be unaware of, or impressed by, the very elements which appeal so strongly to the "upper-middle" class person. In the "middle-majority" home, Kukla, Fran and Ollie is regarded as a "good child's program" because of its imagination, sexlessness, and largely innocous content.

The use of such programs as a vehicle for commercials is strongly influenced by its unusual audience. Kukla, Fran, and Ollie apparently do not regard themselves as salesmen, and have a distinct tendency to fall into faint or self-conscious praise of the sponsor. Material objects are too important to the "middle-majority" to be endeared by such slighting, and a ribbing-the-product approach needs to be very broad-sided humor for them to get the point.

At the "upper-middle" class level, almost the reverse is true. They feel it genteel to devaluate their possessions, and also are likely to become hostile when exposed to long sales talks. They are likely to bear advertising-per-se some slight grudge, and their sales resistance drops when the selling is disarming.

Informality of advertising on "upper-class" programs is a strong point. Fun about phonographs, Fords, and food serves to enhance these products with very positive feelings in the minds of viewers.

Generally speaking, Kukla, Fran and Ollie and similar shows are best employed for advertising products which are used widely at all class levels. While the numerical size of the audience may endear this type of program to advertisers of everything from Wedgewood to bowling balls, the greatest impact of such shows will be reached when product, advertising aim, and program are compatible.

This type of show is also extremely effective for advertising "quality goods" because of its entrenchment in the "upper-middle" class, which is seldom really loyal to any program or medium.

The examples of two prominent television shows were used becau they demonstrate the idiosyncrac that even "mass appeal" progran have and the fact that it is i possible to build an audience whi does not have particular viewpoi toward what it watches. The pop larity of a program does not gua antee sales impact, and the exc lence of a given commercial ce tainly does not guarantee th prospective buyers saw it.

More than any other mediu television is experienced as a priva thing. This intimacy makes po sible a degree of rapport and agre ment between advertiser and a dience that has not previously bee attainable. However, it carries, to the potential boomerang that intimate circumstances distaste an revulsion are also heightened. I radio and magazine, the indifferen audience simply waits — in telev sion, they get up unless both th visual and the auditory senses a pleased. It seems certain that "irr tant advertising" will not get th results in television that it ge when confined to a single bodi sense.

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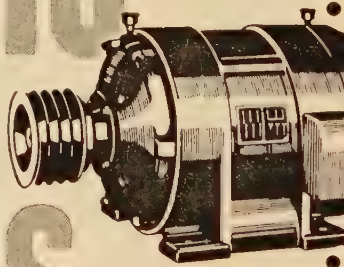

The Private Inventor

(Continued from page 20)

tory but from the workshops o individual inventors.

The real reason why the inve tor cannot be displaced by cooper tive research lies in the inheren nature of invention. Any new pro uct — no matter how complicate or revolutionary — can be reduce to a heap of familiar mechanica electrical, or electronic element The inventor is not a scientist, bu an artist in the true sense. He i terweaves known things with ne ideas to produce results which ar more than the details from whic they were formed. The portra painter does precisely the sam thing. Twenty skilled artists wor ing together on a canvas will pr duce no masterpiece. Nor will th cooperative efforts of 20 gifted r searchers necessarily produce rev lutionary inventions. In both i stances, the creative element is lac ing.

The logical basis for industri research is specialization. The i dividual inventor's outstanding tra versatility. His fertile mind uches many fields of human en- avor and in each comes up with w ideas. He does not chance the nger of becoming "so well in- rmed in his particular field that works in a closed circle and is capable of visualizing anything dically new." This danger, in- rent in all cooperative undertak- gs, was pointed out by Peter einhardt, an authority on research d invention.

The head of a large petroleum search organization once said, Ve encourage our researchers to evote ten per cent of their time work on original ideas." The bal- nce of their 40-hour week is neces- rily devoted to assigned projects. hus, it is hardly likely that a steel mpany researcher will concoct a ew type of plastic or a better aby carriage.

Invention Vital

Unfettered inventive genius fash- oned the framework of the Ameri- an economy. Thomas Edison once aid "I have enough ideas to keep he laboratories busy for years . . . nd to break the Bank of England." li Whitney's cotton gin was large- y responsible for the agricultural evolution in the South and con- ributed much to economic and ocial conditions which eventually lowered into the Civil War. The nventor's role as an industry-build- r is evidenced by the names of he country's leading concerns: Goodyear Rubber, Consolidated Edison, McCormick-Deering, East- nan Kodak, Bell System, Sperry Gyroscope, Burroughs Adding Ma- hine, Westinghouse Electric.

Equally as startling has been the decline of this profession in recent years. "Since 1885," E. C. McDow- ell, a noted consulting engineer declares, "Since the last depression there has been a sharp decline in spite of an enormous increase in echnological schools, engineers and skilled workers." This was demon- strated in a recent magazine selec- tion of 120 of the half century's leading personalities. Although 23 were inventors, all developed their major inventions prior to World War One. There are alarmingly few 1951-model Edisons or Bells!

Many reasons underlie the de- cline in individual inventiveness. Industry and business are by no means blameless. The outside inventor does not always receive a fair hearing. Far too many concerns close their eyes to new products, shut their ears to talk of inventions, and clamp a padlock over their checkbooks. They are not interested in the inventor, nor the innovations he peddles.

Paradoxically, the worst offenders are smaller firms who do not participate in industrial research, who personify the "all eggs in one basket" philosophy. The machine shops whose business depends on a few sub-contracts or on one or two items seem to overlook the inherent danger of their position. A shift in consumer demand finds them without markets; a whim of their prime contractor may idle every machine.

An accusing finger must also be leveled at the school system. On a mass production scale, it has smothered inventiveness under the blanket of standardization and specialization. "The Brookings Institution," Charles F. Kettering reports, "made the study which said that the more education you had the less likely you were to be an inventor." The rise in school enrollments has been paralleled by a drop both in number of inventors and patents granted.

The patent system creaks in its many joints and patent laws, as interpreted by generations of judges, have attained what one critic calls the status of legal metaphysics. "The patent today is not the incentive that it was when Bell and Edison rose to fame," according to T. Irving Potter. This managerial expert, president of Potter and Halsey, Inc., adds "Even such geniuses would find it difficult to thrive under present weakened patent protection. We have seen patent applications decline by almost 50 per cent in the last 20 years. American technological supremacy is threatened by the costliness of patent litigation."

The cost of such litigation, according to the Patent Equity Association, averages close to $180,000 for each case. At the present time, E. C. McDowell points out, "a patent is legally worth little until it has been upheld by the higher

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H.R. PICKLED STRIP
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79 W. Monroe St. FRanklin 2-0274
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Residential Commercial

courts, and the inventor receives little more than the right to sue. Since 1880 the Supreme Court has invalidated about 65 per cent of the patents that have come before it. The history of most outstanding inventions in the past is to a large extent the story of the inventor spending much of his profits suing for infringements."

High Patent Costs

Although the cost of obtaining patents is reasonable for a large corporation, it is usually far too high for the individual inventor. Consider the experience of one inventor who recently patented a new toy. Government fees came to $30. Patent drawings cost $165 and the lawyer $225. This was only the beginning. Toy manufacturers insisted on seeing a model. Cost for a model ran to about $3,000. The value of the inventor's time, living expenses while selling his invention, transportation and other costs all add up to a sizeable amount.

To these inhibitory forces can be added many others. Federal regulations on speculative investment have tended to dry up sources of venture capital, the lifeblood of invention. The bust-boom cycle of recent times has provided a poor environment for invention.

The present plight of inventors is not exclusively an industrial problem. Yet, enlightened self-interest dictates that American free enterprise tackle the problem squarely. Measures should be taken to modernize patent law and patent jurisprudence. There is a need f a realistic re-appraisal of industri research and invention.

If companies are to open the doors to outside inventors, the tr nature of the inventor should b understood. The stereotype of th crack-pot toting the inevitable pe petual motion machine, like a stereotypes, is unfair and mislea ing. The true nature of the gifte inventor was explained recently b H. Stafford Hatfield, an authori on the subject. "The inventor," h declares "is a reactor, a stubbor questioner, a rebel. His inventive ness generally shows itself at a early age. He is not stereotype but flexible. The monomaniac pio neers have been the chief creato of modern technology. The moto car, indeed the modern interna combustion engine, the sewing ma chine, the telephone, and man other inventions of the highest im portance were developed by a suc cession of men who were remark able only for the concentrate ferocity with which they attacke these difficult problems. Their per sistence seems inhuman and insan to ordinary people."

The importance of invention an individual inventors is far too grea to warrant continued neglect an mishandling. The need for new in ventions to create new industries new markets and new sources o economic wealth are far too press ing. Research cannot do the job Invention alone is equally as inade quate. Ideally, both should be in the service of industry.

OUTSIZED STEAM BATH: Steam from four overaged locomotives is used by Unite States Steel Company to thaw an experimental shipment of frozen ore from th Mesabi range. For the first time in history, U.S. Steel plans winter rail shipments o 2,000,000 tons of frozen ore this season to four plants.

Invest in the MIDDLE WEST

Reviews of Middle-western Companies

By DANIEL F. NICHOLSON

AMERICAN Phenolic Corporation, which has been sharing n the prosperity of the fastest rowing new industry — television also manufactures products which re used extensively in other ranches of electronics manufacure, including radar, aircraft and ommunications equipment as well s products for a number of other ndustries slated for rapid expanion. Consequently, curtailment in he manufacture of television reeivers because of the nation's earmament program is expected o have, at most, only a temporary ffect on the company.

American Phenolic's sales rose pectacularly during World War I, climbing from less than $700,000 in 1940 and considerably less han that in the preceding two ears, to nearly $40,000,000 in 1944, ot including $6,800,000 provided or the renegotiation of war conracts. Unlike many other companies that prospered while war usiness was available, American Phenolic established itself as a quality manufacturer of precision parts and did not revert to its prewar status. Although sales were cut drastically when war business came to an end, the company began a recovery that was reflected in sharp improvement in earnings.

Diversified Operations

The corporate name of American Phenolic is misleading since it indicates that the company is a plastics manufacturer, which it is, but fails to disclose that it also designs, engineers and manufactures many other products. The company was incorporated in Illinois in June, 1933, to manufacture a radically different type of radio tube socket with a one-piece molded phenolic insulation. In 1935 the production of electrical connectors was begun, and in 1936 the company began to mold the plastic polystyrene. Also in 1936, a coaxial cable was introduced.

Today the American Phenolic Corporation's products, sold almost entirely under the "Amphenol" trade name, include thousands of different items in the socket, cable and connector lines, and antennas for television, FM radio and communication systems. The company's antenna for home television receivers is one of the most widely used. Also widely used is the flat twin-lead cable from the antenna to the receiver. About a year ago the company introduced an improved tubular twin-lead cable. Another new product is a lightning arrestor for antenna installations.

Variety Of Connectors

The line of connectors is made in endless variety. These products range from devices to make a firm contact between two small wires to 100-contact connectors for applications where a large number of circuits must be broken. Connectors are used in power transmission, signal and control circuits, in aircraft, and in electronic equipment. Coaxial cables and specialized wires produced by American Phenolic are used in such varied applications as aircraft controls and high frequency radio. Some 38 miles of Amphenol cable was used in the intercommunication system installed last year by the Elgin, Joliet and Eastern Railroad at its East Joliet yard. Specialized plastic parts are engineered and produced for the electrical manufacturing industries.

More than 1,000 manufacturing firms are listed among the company's customers, but no one of them accounts for more than five per cent of total sales. Among the customers are Admiral Corporation, Bendix Aviation, Boeing Airplane,

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By checking these announcements regularly, you will find valuable aid in fulfilling your government contract.

Consolidated Vultee, Curtiss-Wright, General Electric, General Motors, Grumman Aircraft, Lockheed Aircraft, Minneapolis Honeywell, Motorola, Philco Corporation, Radio Corporation of America, Raytheon, Sperry Corporation, Western Electric, Westinghouse Electric, and Zenith Radio. The company maintains a research laboratory for the improvement of products and the development of new items.

The company's Number One plant, located in Chicago, has a floor area of 165,000 square feet and is owned in fee. In July of last year the company opened its plant Number Two with floor space of 25,000 square feet and foundations were recently laid on a new building in the Chicago area to have floor space of 65,000 square feet to be known as plant Number Four. In addition, the company leases a warehouse containing about 40,000 square feet of floor area.

Until January, 1945, American Phenolic Corporation was owned entirely by Arthur J. Schmitt, president. On January 15, 1945, publ offering was made of $1,500,000 five per cent convertible sinki fund debentures, due 1959, an 345,000 shares of common stoc The latter represented all but 5 000 shares of the holdings of M Schmitt. As of September 30, la the outstanding debentures ha been reduced to $1,018,000 p value. Authorized common stoc consisted of 1,000,000 shares, par value per share, of which 40 000 shares were outstanding. T debentures are convertible in common stock on the basis of $12. a share for the latter. The stock traded in the over-the-counter ma ket.

Postwar Readjustment

When World War II came an end in 1945, American Phenol Corporation was faced with severe curtailment in volume. Sal in 1946 dropped to $5,186,612, fro $28,849,900 for 1945 and despi a tax credit of $665,000 the com pany reported a net loss of $42 116 for the year. Sales recovered $6,367,886 in 1947, and a net prof of $66,491, or 17 cents a share, w earned. Further gains have bee reported. For the nine mont ended September 30, last, net sal were $8,857,700 and net incom amounted to $722,710, equal $1.81 a share. These figures com pared with net sales of $7,358,6 and net income of $410,750, $1.03 a share, for the first nin months of 1949. For the thir quarter, net sales were $3,140,64 against $2,029,012 in the like 194 period, while net income totale $264,899, or 66 cents a share, again $85,220, or 21 cents a share.

It has been estimated that ear ings for the full 1950 year, even the increased rate of income tax be applied to the final six month will be in the neighborhood $2.10 a share. While the low lev of earnings for several of the in mediate post war years is an un favorable base for excess profits ta exemption, American Phenolic expected to be protected by othe provisions of the new excess profi tax law, such as the special allo ance for growth of companies, the right to use an invested capit basis for determining normal ear ings. The existence of an exce profits tax during World War

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INDUSTRIAL • COMMERCIAL LIGHT AND POWER

l not prevent the company from aining a relatively high level of nings, exceeding $2.25 a share each of the years 1942, 1943 and 44.

Following is a comparison of net es, net earnings, and earnings r share, for the years 1937 to 49, inclusive:

ars led c. 31	Net Sales	Net Income	**Per Share
19	$10,082,819	$567,275	$1.42
18	7,255,892	#183,141	0.46
17	6,367,886	66,491	0.17
16	5,186,612	d423,116	d1.06
15	*28,849,900	609,449	1.52
44	*35,988,702	938,598	2.35
43	*30,024,510	914,058	2.29
42	*17,631,746	903,869	2.26
41	3,769,557	269,117	0.67
40	682,621	39,006	0.10
39	534,645	25,655	0.06
38	314,924	4,258	0.01
37	308,644	7,318	0.02

---

fter provision for renegotiation of war ntracts. #After $100,000 provision for ventory obsolescence. d Deficit. **Based 400,000 shares.

At the end of 1949 the company's acklog of unfilled orders totaled 2,320,000, or about the same as at e end of 1948. It has been inicated that during 1950 there was substantial increase in the order acklog. Evidence that a large olume of business may be forthoming in the fields in which merican Phenolic Corporation is rongly situated is the disclosure ate in December, 1950, that the ederal government will place conacts this year for more than ve billion dollars worth of eleconic equipment for the military ervices.

Dividend disbursements have een stepped up with the improveent in earnings. Last year a total f 70 cents a share was paid, with he quarterly distributions increased o 20 cents a share in each of the inal two quarters, against 15 cents aid in each of the first two. The ost recent payment was 20 cents share on January 26, 1951. The 950 payment of 70 cents a share ompared with 30 cents a share aid in 1949, 10 cents in 1947 and 948, 15 cents in 1946, and 45 cents n 1945.

The company has maintained a avorable working capital position. Total current assets as of September 30, last, were $5,149,474 as ompared with current liabilities of $1,214,243. Included in current assets were cash and U.S. Treasury obligations totaling $1,818,799, net receivables of $1,124,852, and inventories $2,205,823. Plant and equipment were carried at $1,477,215 after allowing for depreciation reserves, and other assets amounted to $236,664. Total assets were $6,863,353.

Radar vs. A-Bomb

(Continued from page 17)

the sky night and day all along our coasts would probably be a far too costly defense strategy.

The other scheme calls for a "floating radar net" 50 miles or so offshore, consisting of patrol vessels equipped with radar. Before Korea, the Navy had about two dozen destroyers equipped for this duty, and it has since considered adding four other radar vessels to this service. But the operation would be expensive. None of these vessels are believed to be in operation at present.

Meanwhile, the air force has blueprinted still another defensive plan calling for the use of the most ancient of all warning devices — human sentinels. The plan would call for the recruiting of 500,000 volunteer sky-watchers throughout the United States, especially in "gap" areas, for 24-hour service.

An air force officer admits there's not much hope of recruiting that many watchers unless the volunteers were convinced there was a very "real" danger of attack — or until the country had actually been attacked. About a year ago, the air force recruited 170,000 people to serve as stand-by watchers in 25 northwestern and Atlantic seaboard states. The 500,000 would be in addition to those already recruited. Even with these volunteers providing free services, the "human net" would cost money. One air force officer estimates that it would cost upwards of $5,000,000 a year just to meet such operating expenses as

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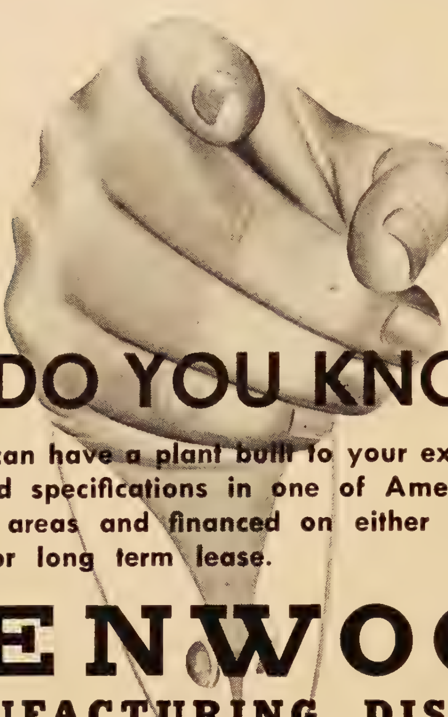

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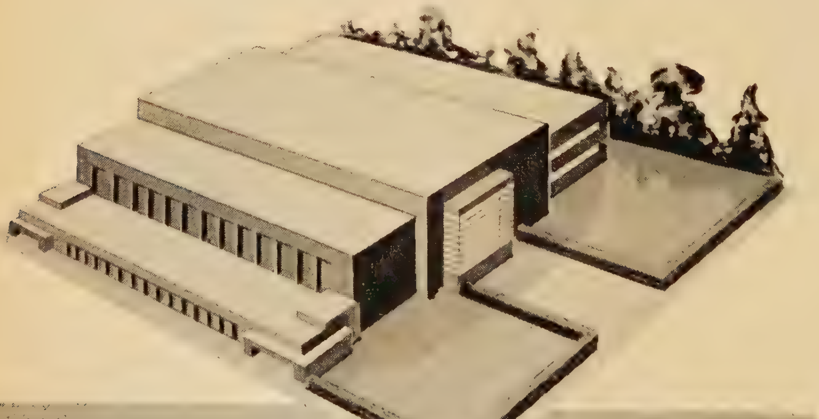

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phone bills and teletype charges.

Without the human net, the r dar screen watchers try to kee tabs on the dots that show up c their instruments with the help the civil aeronautics administratic and the military establishment. T C.A.A. requires commercial airlin and private plane operators to fi "prior flight plans" telling wher and when they expect to enter a radar zone. The military establishment is responsible for keepin radarmen abreast of military pla movements within their areas. I heavy-traffic areas like New Yor City, however, this type of identification generally takes too long an is often impractical for identifyin the many dots that appear.

Future "Pearl Harbor"?

Where would the country stan once the radar net were complete and supplemented with a huma net? Would that guarantee again Pearl Harbors on the United State mainland?

"No," is the official answer. Th enemy could still fly under the ne and not be detected until he cam within 50 miles of a station — or h could fly through a gap and not b detected until spotted by a sk watcher. In either case, the warnin would more than likely be too shor to give civilians a chance to see shelter or the military enough tim to get intercepting planes into th air.

In World War II, Britain had similar system in operation — radar net work and human sky watchers. She also had fighter plane to back up that warning system Nevertheless, she was never able t stop more than 12 per cent of th planes in enemy air armadas fron reaching targets and dropping thei bombs.

American air strategists figure tha by putting more money into fighters, at least they'd keep the enem from returning home with as man planes. Also, by using some fund for additional bombers, the ai force could wreak havoc on enem cities just as well.

But as far as building a foo proof warning system to mak Pearl Harbors impossible in th U. S. mainland, military men sa that's one check that even Uncl Sam couldn't afford to pick up.

INDUSTRIAL DEVELOPMENTS

IN THE CHICAGO AREA

NVESTMENTS in industrial development in the Chicago Indusial Area during January totaled $8,802,000 compared with $22,195,00 invested during January, 1950. hese developments included exenditures for the construction of ew plants, additions to existing dustrial buildings, and the acuisition of land or buildings for dustrial purposes.

Youngstown Sheet and Tube ompany has started construction its East Chicago plant which will ld 430,000 tons annually to its cilities. The present program onsists of construction of a 75-nit battery of coke ovens, a 28-foot earth diameter blast furnace, a 75-foot extension to the present re yard and docks, four new 250-on open hearth furnaces for steel roduction, eight soaking pits and ew slab-heating furnaces. The ompany's Bessemer units will be iscontinued upon completion of he four additional open hearths.

Allied Chemical and Dye Corpoation, Barrett Division, will exand its facilities in Chicago for he manufacture of phthalic anhydride. This chemical is used in the naking of lacquers and paints. The ompany will also construct an addiion to its refining facilities and a new power plant. The plants are ocated at 2800 S. Sacramento bouleard and 3121 S. California avenue.

International Register Company, 2620 W. Washington boulevard, manufacturer of precision equipment and time-elapse instruments, has acquired land at Central and Howard avenue in Niles on which it plans to construct a one-story plant containing 180,000 square feet of floor area.

American Phenolic Corporation, 1830 S. 54th avenue, Cicero, is building a one-story plant, 500 feet long by 160 feet wide, at 72nd and Harlem avenue. The company manufactures electrical and electronic plastic products. H. K. Ferguson Company, general contractor.

Minnesota Mining and Manufacturing Company, St. Paul, Minn., has purchased 120 acres of land along Harlem avenue at 71st street in Bedford Park. The company plans to build a unit for its local division, the Mid-States Gummed Paper Company of 2515 South Damen Avenue on this site.

International Minerals and Chemical Corporation, 20 N. Wacker drive, operating a plant in Chicago Heights, has purchased a site in Skokie on which it will construct a research laboratory. The company makes fertilizers, phosphates, chemicals and potash.

Glidden Company, 5161 W. Moffat street, is adding a boiler house to its linseed and soya bean oil refining plant. Christopher J. Chamales, architect; Graff Construction Company, contractor.

General Box Company, 500 N. Dearborn street, has purchased a four-acre site in Des Plaines on which it will construct a one-story building containing about 22,000 square feet. This first unit of a complete new plant will house the company's executive offices and an experimental laboratory.

Birtman Electric Company, 4140 W. Fullerton avenue, has purchased the former American Laundry Machinery Company plant at 1800 N. Spaulding avenue. Nicholson, Porter and List, Inc., brokers.

Gulbransen Company, 816 N. Kedzie avenue, will construct a 100,000 square foot factory in the Clearing Industrial District in Melrose Park. The company manufactures pianos and organs.

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Ill., is constructing a one-story, 30,000 square foot reinforced concrete addition to its warehouse and processing plant. Holabird and Root and Burgee, architects; A. L. Jackson Company, general contractor.

Fiat Metal Manufacturing Company, 9400 W. Belmont avenue, Franklin Park, is constructing a 15,000 square foot addition to its plant. The company makes shower cabinets, doors and other bathroom fixtures. Marx and Lutz, architects.

Garden City Envelope Company, 3001 N. Rockwell, will construct an 18,000 square foot addition to its plant. Friedman Alschuler and Sincere, architects.

Wilbert W. Haase Company, Forest Park, manufacturer of burial vaults, is constructing a plant at the corner of 25th and Roosevelt road in Broadview.

Mall Tool Company, 7740 S. South Chicago avenue, which constructed a plant a year ago in Crete, Ill., is building another plant in Crete.

Bagcraft Corporation of America, 2525 S. 50th avenue, Cicero, is constructing a 25,000 square foot building in the Crawford Avenue Central Manufacturing District. The firm manufactures cellophane and glassine moistureproof bags.

Servicised Products Corporation, manufacturer of asphalt and rubber products used in the building industry, has purchased the one-story industrial building at 6
W. 65th street which it has occup
for several years.

Atols and Son Tool and
Works, 5005 W. Armitage aven
is constructing a one-story addit
to its plant. Klefstad Engineer
Company, engineers-contractors.

Financing Undeveloped Nations

(Continued from page 24)

of risk in the development of the more backward regions, which sometimes means whole countries. It takes time, usually a long time, for the very large investments which have to be made to bear fruit. During that time the country will receive little additional income and may at the same time be paying interest on borrowed money. In fact, some investments may never bear fruit. Human planning will always be imperfect, depending as it does on numerous unknown quantities.

We sometimes tend to forget that development depends on human beings, whose behavior in very different conditions cannot be forecast. If past experience is any gui
some peoples can become adept
agriculture, commerce or indus
in a remarkably short time, wh
others seem to resist change. T
is one kind of risk, perhaps
most important one. Another is
economic risk. Even if people
spond to education and opportu
ty and become proficient, for
ample, in some branch of agric
ture, they may one day find th
livelihood menaced. Their cr
may be attacked by unanticipat
disease. The development of sub
tute materials may cut off the
mand for their product. But
these risks have to be taken becau
the price of doing nothing may
perpetual stagnation.

In the past few years the Ba
has been able to assist a number
the underdeveloped countries
making loans for a variety of p
poses. Let me give you a few
amples; building new power capa
ty to overcome shortages in the
dustrial regions around Sao Pau
in Brazil, around Mexico City a
in the Damodar Valley near C
cutta; post-war rehabilitation of t
railroads in India and Thailan
dredging and re-equipping the p
of Bangkok to save costly light
age and manual handling of freig
building storage facilities in T
key to stop the spilling and spoila
of grain. By and large, these proje
have had a clear and well-defin
objective. They were obviou
highly necessary and they shou
have an almost immediately be
ficial effect on the economies
these countries; indeed, some
ready have had.

But the International Bank
after all, a bank; the amount it c
lend is limited by the prudent
gard it must have for the prospe
of repayment. For many countr
the limit is high enough to per
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able rate. But for others, the nit is very low and there is little ospect of raising it, not at least th any speed, because the kinds of vestment they need are the ones at yield slowly and carry a conlerable risk. We must frankly ce the fact that these countries nnot perceptibly accelerate the te of their development if the ly capital which they receive is the form of loans which have a asonable prospect of repayment.

It has sometimes been suggested at this problem should be met by oviding capital in the form of ry long-term low interest rate ans. Such loans can, of course, ly be made by governments. Be- use such loans, in form, appear to ovide for a tangible quid pro quo hich can be written down as an set, it may be easier to secure gislative approval for them than r outright grants. But the very ct that these loans are made on pecially easy terms and are still lled loans should make us sus- icious. Although easier terms re- uce the element of risk, they do ot come near to eliminating it. nd so, in the end, although some ans will turn out well and will be paid, others will bring in their ain, first, severe strain on the conomy of the borrower, and fi- ally, default.

Grants Vs. Poor Loans

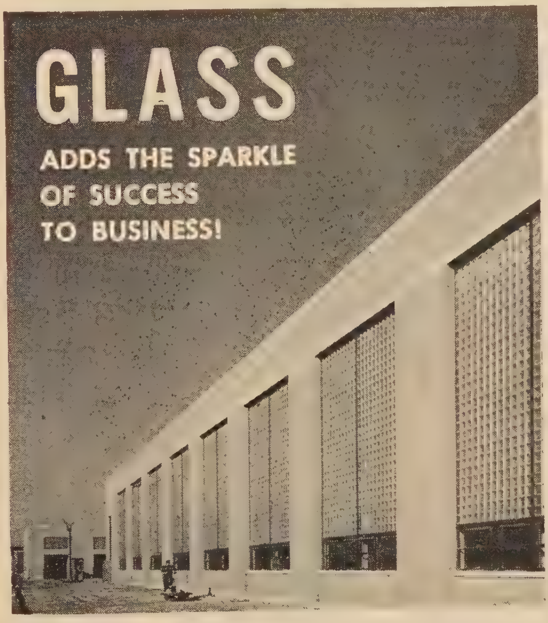
When this happens, there is likely be ill will, rational and irration- l, on both sides. In my opinion, here you have a choice between rants and fuzzy loans of this kind, pays in the long run to make rants.

I have described to you in some- hat oversimplified terms, what the ask of economic development neans. It will need the whole ar- nory of the advanced countries to ttack it, loans and grants, technical ssistance and private investment. And these weapons must be used in ombination, not piece-meal, in rder to ensure that all the resourc- s of the underdeveloped countries re used as effectively as possible. Their governments need encourage- nent and support if they are to do heir part of the job, which is the nain part, with the firmness and oldness that is required. We would nvite waste and frustration if loan funds from the Bank, for example, were made available to a country according to one plan, grants or loans from another source according to a different plan, and technical assistance without regard to either. And that, I am afraid, is what is likely to happen if a strong effort is not made to coordinate our forces. Indeed, it is already happening.

But, when all this has been said, there still remains the question whether at this juncture the United States and the other industrial countries of the world can afford the money, which of course means the goods which it would buy. The governments of these countries know the magnitude of the defense effort they are undertaking, what can or cannot be released for other purposes. I shall not be so presumptuous as to argue about that.

But I would say that when this has been decided, very serious thought should be given to the disposal of the residue. Our national income is so large that, even after a very large defense effort, the residue would still provide a tolerable living for civilians. We do not know the meaning of austerity — not yet. Compared to this residue, amounts which would make a very great difference to the underdeveloped countries would not affect our standard of living in any serious way, although they might cut into our indulgences a little.

There is one thing that I would like to emphasize at this point. We must make sure that everything we



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spare is, in fact, employed usefully. In these times, least of all, there is no excuse for waste. We cannot afford to make gifts as a gesture, which will do no real good to the recipients.

And if we can afford something, why should we take the trouble and bear the additional sacrifice? To this, I think there is a simple answer. We are bound to do it, because it is in our own self-interest, because it is the only action consistent with the basic principles which the Western World is striving to maintain. Of course, there will be those who will cry "Operation Rathole" and will ask how many divisions we are going to get out of it. To this I would say that we may get no divisions. But if we do nothing, we may see an even greater multitude of divisions against us and important sources of raw materials cut off. Certainly the lessons of recent years have emphasized the truth that aggressive Communism breeds on poverty, misery and hopelessness.

There is another answer, too, and that is that assistance for development to backward areas is the onl action consistent with the basi principles which the Western World is striving to maintain. We speak with pride of the vast industrial machine that the American people have created and the high standard of living we enjoy. But i is not, in the main, the American people living today who created our prosperity. It was our fathers and forefathers. They left us an inheritance and we are in a very real sense the trustees of this inheritance. Our stewardship must be wise and just, for it is not only material but also a spiritual inheritance. I trust the American way of life that we are fighting for is not just the enjoyment of the materia half of the inheritance, because, i it is, it will crumble from within for lack of moral fibre.

Sermons Not Enough

What can we offer the people who live in the underdeveloped countries in conditions such as described earlier, conditions which to us are barely conceivable? Should we merely offer these people, who often achieve a dignity in life which we might envy, a sermon on the benefits of democracy and free enterprise and ourselves as its prime example? To them, democracy and free elections are meaningless; government is the local tax-collector. And the concept of free enterprise is equally unintelligible unless it means giving them a decent plot of free unencumbered land, sufficient tools and working capital to work it, instruction in how to improve it and credit at a reasonable rate to take advantage of that instruction. And to get them this, we have to put as much physical effort and moral force to work as we can.

Eighty-eight years ago, at another time of crisis, Abraham Lincoln said: "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion. As our case is new, so we must think anew and act anew. We must disenthrall ourselves, and then we shall save our country." Today not the Union, but the free world is at stake. If we do not rise with the occasion, we shall fall with it, and we shall fall very hard.

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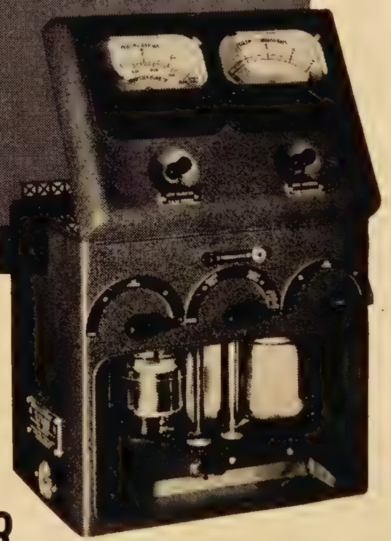

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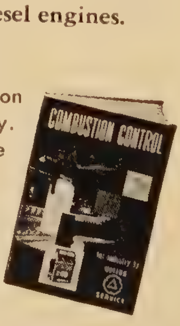

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QUALITY PETROLEUM PRODUCTS

TRANSPORTATION and TRAFFIC

☆

HE NATION'S railroads, on January 16, petitioned the Inrstate Commerce Commission for general six per cent increase in eight rates and charges. The inease would be subject to maxiums of four cents per 100 pounds n sugar and lumber and six cents er 100 pounds on fresh fruits, egetables and melons. Specific inreases of 18 cents per net ton and 0 cents per gross ton are proposed n coal rates. The requested rate oost is intended to offset recent eneral wage increases granted raiload operating employes, estimated t about $130,000,000 annually. In nnouncing the proposed increase he carriers stated that in the event ailroad operating expenses should e further raised, it may be necesary to bring the changed situation o the attention of the commission n supplemental petitions for further increases in rates. The petiion filed by the eastern railroads n December 1, 1950, seeking a our per cent increase in rates on raffic from, to, within and via Official Territory, was dismissed by he commission with the filing of he nation-wide rate increase request.

Forwarder Bill Becomes Law: President Truman on December 20, 1950, signed H. R. 5967, the o-called freight forwarder legislaion. The new law accords the status of common carriers to the freight forwarders and will permit them to enter into contracts with carriers for transportation service providing that their contracts with motor common carriers for truckload movements of 450 miles or more do not allow payment of charges lower than the lawful tariff rates. The bill passed the House on August 9, 1950, and the Senate on December 6, 1950.

Supreme Court Upholds Rail-Barge Order: The Supreme Court of the United States has affirmed the decision of an Illinois federal district court which upheld the order of the Interstate Commerce Commission in Docket No. 26712, Rail-Barge Joint Rates. The order, which is to become effective March 1, 1951, requires railroads and water carriers operating on the Mississippi and Warrior rivers and their tributaries to establish through rail-barge routes at prescribed joint rates.

Appeal Lenoir-Schenley Cases To Supreme Court: The Regular Common Carrier Conference of the American Trucking Associations, and three motor common carriers, have filed an appeal with the Supreme Court of the United States requesting a reversal of the decision of the three-judge federal district court for the eastern Virginia district, which recently upheld the orders of the Interstate Commerce Commission in the Lenoir Chair Company and Schenley Distillers Corporation cases. Both Lenoir and Schenley transported goods to their customers in their own vehicles at a charge equivalent to the common carrier rate, and the commission held that this transportation was incidental to and in furtherance of their primary business and not that of either a common or contract motor carrier. The conference and the three individual motor carriers filed suit to have the order set aside, contending that wherever compensation, direct or indirect, is found, the carrier is a common or a contract carrier. The Virginia court held that Congress was evidently quite aware of the consistent practice of the commission in applying the primary business test rather than the compensation test in determining the statutory status of carriers and had never amended the Interstate Commerce Act so as to negative that practice. The

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court added: "If the compensation test should be rigidly applied it is not difficult to foretell the vast volume of cases which would thereby be cast on the already heavily burdened Interstate Commerce Commission." The appeal to the Supreme Court lists ten counts in which the District Court allegedly erred in upholding the commission's findings.

P. I. E. Asks Commission To Reconsider Keeshin Purchase: Pacific Intermountain Express Company has petitioned the Interstate Commerce Commission to reconsider and reverse its order which denied them the right to purchase the properties of Keeshin Freight Lines. In its order denying the merger of P. I. E. and Keeshin, the commission stated that its obligation was to preserve all forms of transportation and that the proposed plan would undoubtedly divert a large amount of freight from the railroads with the result that these carriers would have to reduce their service and further increase freight rates.

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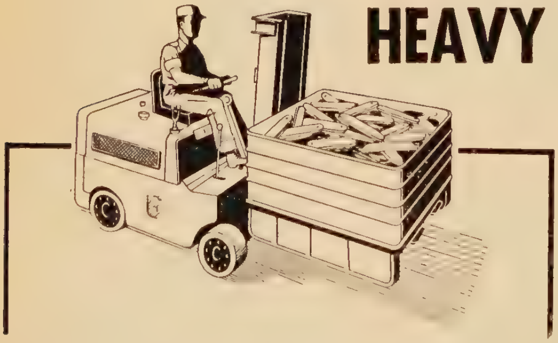

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Express Agency Asks Rate
crease: The Railway Expr
Agency, Inc., has filed a petiti
with the Interstate Commerce Co
mission for increases in expr
rates and charges. The petiti
seeks to establish five pound gra
tion blocks up to 100 pounds a
to increase the present first cl
rates for each five pound block by
cents. Second class rates would
raised to 75 per cent of the
creased first class rates. The charg
on a package would be based
that applicable for the next hig
est five pound weight block. F
example, the charges on a six pou
package would be the same as f
a 10 pound package. The petiti
also proposes a 25 per cent increa
in valuation, C. O. D. and mon
classification charges and a mi
mum charge of not less than
per shipment.

Lukewarm To Very Hot

(Continued from page 15)

opened synthetic plants speed
operations. Thus, more natural ru
ber will be needed to mix with t
larger quantities of synthetic. Mo
natural will also be needed f
military uses, some of which requi
100 per cent natural rubber.

The current drive to find Ame
can sources of natural rubber
directed at three possibilities: (
improving the Hevea rubber tre
(2) getting rubber from guayule
some other shrub, and (3) conve
ing "wild" rubber into a produ
comparable to plantation rubbe
Fortunately, science has now foun
ways of speeding up the once tim
consuming job of rubber researc
Department of Agriculture researc
ers have found short-cuts to spe
their work, for example, on th
improvement of Hevea, the Braz
born Para rubber tree. Hevea
now the principal source of rubbe

To speed the blooming of Hev
breeding material — so as to ma
experimental crosses quickly—th
bring cuttings from clones (pu
vegetative strains from single plan
in various places to Florida whe
they graft them on tops of matu
Hevea trees. These trees force t
grafts to flower within two to thr
years. According to Dr. R. D. Ran
head of the division of rubber pla
investigations, these methods sa

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Automatic Utilities Inc.
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Brookfield 70

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Experienced line — Machine Shop
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as much as three years over the time normally required.

For years the possibility of developing profitable farm and plantation rubber growing in the American tropics has been clouded by the South American leaf blight, which is extremely destructive to improved strains of rubber trees. After working on the problem for 10 years, agriculture department scientists, with the assistance of Latin American specialists, have found ways of using plant materials and production practices that brighten the prospect for a natural rubber industry in the Western Hemisphere.

The principal key to success with this crop is what experts call the "three-component tree." This development represents a radical change from standard propagating practice in the highly developed, still blight-free, Hevea plantations of the Far East. The triple tree is built up by base budding of seedlings with high-yielding strains (the result of research in the Far East), and later top budding at a height of six feet with leaf-blight-resistant material to form a resistant crown.

Slow but significant progress is being made toward the production of natural rubber within the boundaries of the United States from guayule — from the Spanish "plantball," so called because the Aztecs made footballs from the substance. The shrub grows wild on the dry table lands of Mexico and Texas. Agriculture department scientists recently created new guayule strains which yield from 25 to 40 per cent more rubber than the best strains produced during World War II. One of the new ones is a hybrid that breeds true from seed and carries the first generation hybrid vigor into succeeding generations without loss.

Guayule was first suggested as a possible source of domestic rubber about 1900. During World War II, Congress appropriated money for the planting of 32,000 acres of guayule largely in California as an emergency source of rubber. Imports of guayule rubber from the Mexican wild shrub rose from about 4,600 tons in 1940 to nearly 10,000 tons in 1944. In the United States the shrub was grown under irrigation and, when harvested at the
end of two and three years, it p
vided natural rubber at a cost th
could be justified only in an em
gency.

Post-war research has shown th
guayule has important possibili
for dry-land farming because of
great drought resistance. In
operation with the Texas agric
tural experiment station, the ag
culture department has establish
pilot plantings to test the adap
bility of guayule to various so
and climates and also provide
formation on yields and costs
production. It is believed that se
lings of the productive new stra
will produce about 1,200 pounds
rubber per acre in five growi
years.

California Tests

Cultivation methods are bei
worked out. Test plants have a
been made in five widely scatte
locations on range land in Ca
fornia to find whether a living
serve of rubber can be maintain
on such lands.

It was necessary during Wo
War II, when about 95 per cent
the world's supply of natural ru
ber was cut off, to make use
every bit of available natural ru
ber whether it was of good or
ferior quality. Many types of wi
rubber were collected from tropic
America and Africa. Some were
such inferior quality that they h
to be blended with better grades
rubber before they could be use

Chemists of the National Bure
of Standards have developed
simple method of converting wi
rubbers having a high resin co
tent into a product comparable
plantation rubber. This is acco
plished by extracting a large po
tion of the natural resins from t
wild rubbers. Mastication of t
rubber during extraction deresina
the rubber efficiently, bureau che
ists found.

The deresination studies we
conducted as part of a research a
testing program on natural rubb
sponsored by the rubber develo
ment corporation of the Reco
struction Finance Corporation. T
Mexican wild rubbers obtain
from the shrubs of Chilte and Gu
yule were chosen for the investi
tion.

The Chilte rubber, with over

cent resinous materials, took four hours of extraction when mpanied by mastication to e it like plantation rubber. yule with 20 per cent original n content took even less time to e it suitable. Without mastica- , the extraction required more n 12 hours to bring about simi- eductions. The mastication proc- not only shortens the deresina- but results in a stronger rub-

he shortage of available natur- ubber has resulted in continu- price increases as buyers bid up rubber stocks. Recently, the U.S. ernment decided to let the Gen- Services Administration become purchaser of natural rubber in effort to cut down the bidding- and competition.

new National Production Au- rity order was also issued on ember 11 to provide that the ember, 1950, industrial quota of ural rubber — 45,000 tons — be to 28,000 for January and Feb- ry, 1951. This points to fewer ural rubber tires for 1951.

It seems only a matter of few months before some action is taken to begin gathering "wild" rubber again, and looking toward rehabilitation of the World War II Brazilian and other Western Hemisphere experimental plantations. And, Congress will no doubt recognize the importance of natural rubber by appropriating more money to further accelerate natural rubber research.

Trends In Finance and Business

(Continued from Page 10)

decade ago. As for operating efficiency, the nation's now extensively mechanized farms have never before been so well equipped for an all-out production drive.

Although the institute does not emphasize the point, the study makes clear the fact that farmers continue to be one of retailing's richest markets. Farmers as a whole now have $1.67 in cash or its equivalent for every dollar they owe, whereas in 1940 they had only 50 cents in cash assets for every dollar of debt.

The institute concedes that much of this increase in farm prosperity has resulted from inflation, but it adds that much also represents "solid gains in tangible possessions and savings." For example, farm savings have been growing at a striking rate, while debt has risen relatively slowly. At the beginning of 1951, farmers held nearly $22 billions in bank deposits, currency, savings bonds and investments in cooperatives. In 1940 they held only $5 billions in such assets. Total farm debt at the start of 1951 was estimated at just under $13 billion, as against $10 billions in 1940. Significantly, even this small debt increase was in such non-real estate obligations as government crop loans. Farm mortgage debt meanwhile has dropped nearly a billion dollars below the level just before World War II.

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New Products

Lunch-Box Brightener

Sal-San Corporation, Box 784, Decatur, Ill., believes it has the answer to the hum-drum monotony of lunch-box eating. The company has introduced a plastic lunchbox liner with three compartments, two of which have airtight lids and are designed for salads, vegetables and the like. The third compartment holds sandwiches, meats, bread and fruit. The liner fits standard lunchboxes and is said to prevent food from absorbing a metallic flavor.

"Damage-Proof" Vacuumer

Hild Floor Machine Company, 740 W. Washington Blvd., Chicago 6, has introduced a portable heavy duty vacuum machine for both wet and dry pickup, which the company regards as "damage-proof." The machine requires no adjustments or change of parts when switched from liquid to dry dirt pickup; hence, no special precautions are needed to guard against damaging the unit. Since the unit's "by-pass" motor does not depend on the vacuum air stream for cooling, it cannot be damaged by dust or moisture picked up by vacuum.

Electric Tape Dispenser

An electrically-operated machine for dispensing gummed tape automatically in lengths from two to 40 inches in ½ inch multiples has been introduced by Moco Products, Inc., 3347 Addison Street, Chicago 18. The "Lectromatic Taper" is finger-tip controlled and is said to increase wrapping speed greatly. It occupies an 8 x 18 foot bench space and operates on 115 volt, 60 cycle current.

Auto Regulator Tester

Crumbliss Manufacturing Company, 3011 N. Cicero Ave., Chicago 41, has developed a tester for auto regulators, coils and condensers which plugs into any 110 volt outlet and simulates conditions in an auto. The tester reports the precise operation of the cutout, current-control unit and voltage coil and also indicates whether the generator is charging too high or too low. Adjustments can be made on the regulator while it is being teste simply removing its cover.

Aluminum Nameplates

No rivets or screws are neces to attach aluminum foil namepl developed by C & H Supply C pany, Metal-Cal Division, Sea Washington, to any smooth sur Instead, the nameplates are ba with a high tensile bonding ma al. They come in five colors are said to be highly corro resistant.

Self-Expanding Bookends

The books on your desk o brary shelf will never tum down, declares the Lordell Co ration, 219 W. Chicago Ave., cago 10, if you use their new "B master"—a pair of bookends w are joined together by a three-i canvas band wound upon an visible spring roller. With this stant tension, the "Bookmas will hold everything from lea and telephone directories to fl magazines.

Corn Planter Tire

B. F. Goodrich Company, Ak Ohio, has developed a uniq shaped tire for corn planters is designed to prevent picking dirt. The tire has high shoul and a low center and is mou on a standard drop-center rim a lightweight, specially-devel wheel. Goodrich says its tire enable farmers to plant seeds formly even when the groun soggy.

Chart-Making Aids

Chart-making can be made a easier, says Chart-Pak, Inc., S ford, Conn., with its new colle of "prefabricated" charting m rials — bars of various designs, tangular boxes, and the like—w are printed on gummed tapes. T are to be applied to a plastic c board, which comes with the and which can be photo-offse photostated for continued use.

Rapid Orange Squeezer

Restaurants, food stores and o bulk users can squeeze up to

ges a minute with a new juice
actor developed by Tubular
raft Products Company, Los
eles. The unit has cups, at-
ed to a moving chain, which
oranges from a hopper. They
then fed into mechanical knives
halve them and finally are
eezed automatically. A strainer
rs rinds and seeds from the
e.

ck Monogrammer

epartment stores and stationery
os can initial to order 50 play-
cards a minute with a new
nogramming machine developed
Peerless Roll Leaf Company,
, Union City, N. J. The ma-
ne works with three brass die-
tes which provide one, two and
ee-letter combinations in gold,
er or colors.

Iere, There and Everywhere

(Continued from page 8)

miculite, a mica mineral pro-
ted by the Zonolite Company of
icago. At destination, the ingot
ained a temperature of 1,575 de-
es F.

Science Marches On! — Science
just added to man's fund of
ful knowledge with the finding
t, contrary to an old belief, the
nmon housefly may stray many
es from home. This was estab-
ned with the help of nuclear
ysics at Oregon State College,
ere thousands of houseflies were
ated to food containing a radio-
ive isotope. Sure enough, reports
American Chemical Society, the
lioactive critters turned up as
ich as 12 miles away, indicating
it fly control programs will have
cover larger areas than once
ought necessary.

Clothes Dryers Boom — Electric
thes dryers emerged at the end
1950 as one of the fastest growing
postwar developed appliances, ac-
rding to Hotpoint, Inc. The Chi-
go concern adds that sales of
yers increased 300 per cent last
ar. Fifteen manufacturers are now
mpeting for the dryer business,
mpared with only three in 1941.
st year they shipped more than
0,000 units.

Look Out When Thermometer Hits Bottom

(Continued from page 19)

Liquid oxygen and liquid nitrogen have already found important uses in industry. The Linde Air Products Company, for example, often ships oxygen as a gas under pressure of 2,200 pounds per square inch for use in oxacetylene torches. By liquefying the gas, tremendous storage space is saved. According to one estimate, a single tank car of liquid oxygen carries as much gas as 11 freight-car loads of pressurized gas cylinders.

Moderately pure oxygen will play an increasingly important role in speeding up combustion in industry, especially in manufacturing.

Nitrogen in liquid form also serves industry in product assembly as a "shrink fitter." When a metal

Loaded down with work and worry?

Needing help—and in a hurry?

The Know-It-Owl says:

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Outside Chicago see the **YELLOW PAGES** of your local telephone directory

Advertisers' Index

February, 1951

A
A-Z Letter Service 47
Acorn Venetian Blinds 41
Advertising Corp., The 42
American National Bank & Trust Co. 35
Airkem Chicago, Inc. 25
Archibald, E. L., Company 30
Automatic Utilities 41
B
Baird & Warner 43
Battey & Childs 30
Boynton, A. J., Company 35
C
Cadillac Glass Company 37
Chicago Belting Co. 30
Chicago, Burlington & Quincy Railroad Co. 39
Chicago Electric Company 37
Chicago Name Plate Co. 47
Chicago Offset Printing Co. 47
Chicago Planograph Co. 47
Chicago Tribune B. C.
Chicago Wheel & Mfg. Co. 47
Cities Service Oil Co. 38
Clearing Industrial District 3
Commonwealth Edison Co. 1
Crown Stove Works 41
D
De Leuw, Cather & Co. 44
Doering, C., & Son, Inc. 26
Donnelley, Reuben H., Corp. 45
Dura-Tred Co. 40
E
Efengee Electrical Supply Co. 42
Egan, E. H. 47
Englewood Electrical Supply Co. 11
F
First Federal Savings & Loan 30
Fulton Asphalt Co. 47
G
Greenview Mfg. Co. 41
H
Haines Company, The 10
Hargrave Secret Service 47
Harrington, J. J., & Co. 47
Hyre Electric Co. 32
I
Illinois Central Railroad Co. 9
Iron Fireman Manufacturing Co. I. B. C.
J
James, D. O., Gear Mfg. Co. 47
K
Kedzie Protective Patrol 47
Kelso-Barnett Electric Co. 25
Kling Brothers Eng. Works 47
L
La Grange Metal Products 41
Leslie Welding Co. 47
Lien Chemical Co. 44
Lorenz, George M., Steel Co. 29
M
Marsh & McLennan, Inc. 36
McCloud, W. B. & Co. 10
Mercil, B., & Sons Plating Co. 41
Merz Machine & Tool Works 41
Midwest Hotel 27
Moore, Case, Lyman & Hubbard 40
N
Nation Bilt 41
National Pesticide Co. 47
P
P & G Service Corp. 33
Pedersen's Protective Patrol 47
Peoples Gas Light & Coke Co. 6
Personnel Laboratory, The 30
Pesticide Co. 47
Phipps Industrial Land Trust 34
R
Red Star Inn 26
Rittenhouse & Embree 44
Roscoe Plating Works 41
S
Sheet Metal Engineering Co. 41
Sheridan, L. I., & Co. 10
Sievert Electric Co. 28
Snow, Fred, Steel Treating Co. 30
Steel Supply Co., The I. F. C.
T
Technical Plywoods 41
U
United Air Lines 2
Universal Metal Products Co. 41
V
Van Vlissingen, J. H., & Co. 34
Venn Severin Machine Co. 41
W
Warner Products Co. 41
Weiss Steel Co., Inc. 47
Wilson, L. S., Mfg. Co. 41
World Trade Conference 4

worker wants a tight fit, he simply sprays the inner piece with liquid nitrogen cooled to minus-320 degrees. The inside member shrinks and, when put in place, expands to a tight fit. Liquid oxygen could be used, of course, but it creates an explosion hazard.

Perhaps the most startling application of liquid gases, however, concerns hydrogen. Two years ago physicists at Ohio State University demonstrated what is undoubtedly the most powerful rocket motor ever constructed. It is powered by hydrogen liquefied at about minus-425 degrees. The tiny model was no larger than a man's hand, yet the gases thrust from its nozzle showed a speed of 15,000 miles per hour. That is a thrust, according to the scientists who built the model, higher than that of the small airplane engine.

Eventually, say Ohio State University scientists, liquid hydrogen heated to form a rapidly expanding gas will probably provide a fuel to fire a guided missile across the ocean. They even predict that liquid hydrogen may someday power a rocket to the moon.

Fantastic as this prediction may seem, it is no more amazing than the way metals behave when subjected to intense cold. Cryogenists have found, for example, that electricity will flow indefinitely through a metal when it has been cooled to near absolute zero. And it will keep flowing even without a power supply!

A Dutch scientist proved this in an interesting way. He started electricity flowing in a circuit in his laboratory in Holland, immersed it in liquid helium with a temperature near absolute zero, and then "pulled the plug" connecting it to its power source. Then, he packed up his apparatus and took a boat to England to visit fellow scientists. When he arrived there, electricity was still flowing in the circuit, even though it was attached to no source of power!

This bizarre behavior, which scientists term "super-conductivity," may be of great significance to future power transmission. If it could be properly harnessed, it might mean far more efficient and cheaper distribution of electricity, for there would be no loss of power from generator to user. A thoro understanding of the nature super-conductivity may be the to unlock this door.

The science of cryogenics is beginning. What further advan in technology and knowledge it lead to, no one can say. The century has been one of tremend progress for the whole field of frigeration including home and dustrial refrigeration and the gi frozen foods industry.

Medical men are vitally interes in new refrigerating equipment techniques. They have found t refrigeration often serves as a uable anesthetic in limb ampu tions of older patients. Extre cold can also be employed as sedative. Recently, Doctors T. Fay and L. W. Smith of Tem University "froze" 38 cancer tients for whom all hope had fl They kept the patients in a co for five days, then revived the In some cases the tumors shrunk.

Suspended Life

At temperatures close to absol zero living matter can be kept in state of suspended animation. Alexander Goetz of the Califor Institute of Technology empl liquid hydrogen to quick-fre specimens of bacteria. He belie that living cells maintained at temperature of liquid helium cou be preserved for 10,000 years a age no more from a biologi standpoint than one minute!

"The death of human blood c puscles," he told a group of Ame can Chemical Society, "could be most indefinitely postponed by tremely low temperatures becau of retarded reaction rates of mat in the region of absolute zero. tween normal temperatures and t realms of extreme cold, stretc nature's valley of 'frozen death' living things."

The prospect of storing livi tissue away for hundreds of ye is still somewhat in the realm speculation, however, in the op ion of medical scientists. Right n most attention of cryogenists focused upon industrial appli tions. It is in that field where may expect the most practical a most dazzling accomplishments the future.

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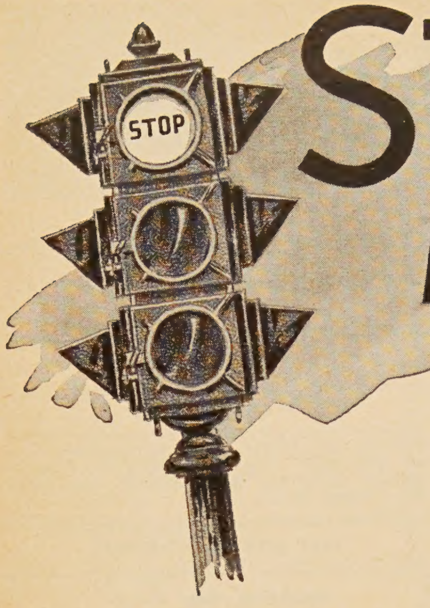

The small town barber was more willing than expert. After being shaved, the customer asked for a drink of water. "Are you thirsty, sir?" asked the barber.

"No," answered the customer weakly, "I just want to see if my face still holds water."

* * *

A decrepit horse was being offered to the highest bidder. An old farmer watched as a young man in riding breeches bid for the animal. When the sale was completed he turned to the young fellow.

"Tell me," he said, "what on earth are you going to do with that nag?"

"Oh," replied the cocky young sportsman, "I'm going to race him."

The farmer took a second look at the animal. "Well, you'll win," he said.

* * *

Church service was over and three prominent members walked home together, discussing the sermon.

"I tell you," said one enthusiastically, "our minister can dive deeper into the truth than any other preacher I ever heard."

"Yes," said the second man, "and he can stay under longer."

"Yes," said the third, "and come up drier!"

* * *

"How are you this morning?"

"All right."

"Well, then, why don't you notify your face?"

* * *

A wealthy farmer decided to go to Church on Christmas. After the services he approached the preacher with much enthusiasm. "Reverend, that was a damned good sermon you gave. Damned good!"

Reverend—"I am satisfied that you liked it but I wish you wouldn't use those terms in expressing yourself."

Farmer—"I can't help it, Reverend. I still think it was a damned good sermon, and I was so impressed that I put a hundred dollar bill in the collection basket."

Reverend—"The hell you did!"

* * *

"Who introduced you to your wife?"

"We just met. I don't blame nobody."

"Me slept with daddy last night," said the small child to the kindergarten teacher who believed in correct grammar, even by the very young.

With emphasis, the teacher said, "I slept with daddy last night."

"Well, then," said the child, "you must have come in after I went to sleep."

* * *

"Mamma, what's a second-story man?"

"Your father is one, dear. If I don't believe his first story he always has another one ready."

* * *

"My uncle's a magician."

"Really? I didn't know that."

"Sure. He can be walking down the street when all of a sudden he says the magic words, 'Abracadabra. Zoom!'—and he turns into a saloon!"

"Say, I hear you lost your job. Did the foreman fire you?"

"Well, you know what a foreman is—he's the guy what stands around and watches the other fellows work."

"What's that got to do with it?"

"Why, he got jealous of me. People thought I was foreman."

The orderly officer received a compl
about the issue of bread.
"Soldiers should not make a fuss ab
trivialities, my man," he said. "If Nap
eon had had that bread when he
crossing the Alps, he'd have eaten it w
delight."
"Yes, sir," said the lance corporal, "
it was fresh then."

* * *

Patient (coming out of an anesthet
"Why are all the blinds down, Doctor?
Doctor: "Well, there's a fire across
alley and I didn't want you to wake
and think the operation was a failure.

* * *

Boy: "What do you call a man t
drives a car?"
Dad: "It depends on just how close
comes to me."

* * *

Speaker: "Remember, there's nothing
the world that's impossible to accomplis
Inevitable voice in the rear: "Ever
pushing toothpaste back in the tube?"

* * *

A convicted murderer was scheduled
die in the electric chair. On the morn
of the day of his execution, he was ask
by the warden: "Is there anything spe
you would like for breakfast this mornin
The condemned man replied: "Y
mushrooms. I've always been scared to
them for fear of being poisoned."

* * *

The stranger ambled into the farm
and was greeted by the farmer. The
tor produced his card and remarked:
am a government inspector and am
titled to inspect your farm."
Half an hour later, the farmer hea
screams from his alfalfa patch, where
inspector was being chased by a bu
Leaning over the gate as the inspec
drew near, the farmer cried: "Show h
your card, mister—show him your car

"Let's forget our budget and go in debt like the government does."